IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This **PHOTOFACT** Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

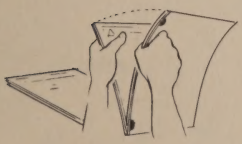
TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 509 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ DEC. 1960

CONTENTS PHOTOFACT SET 509

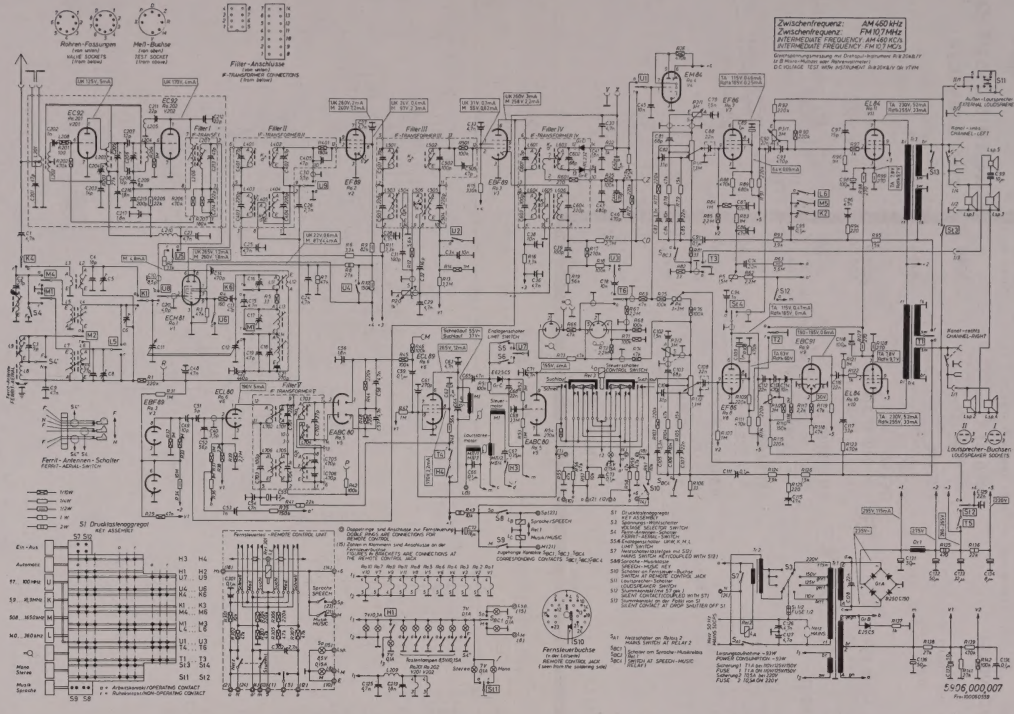
TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
OLYMPIC	
7TV9B, BU, M, MU, 7TV10, U, 7TV11, B, BU, M, MU (Ch. JV, JVU)	509-1
SYLVANIA	
Chassis 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9	509-2
OTHER EQUIPMENT	
ADMIRAL	
SS1081, SS1092, SS1093, SS1139, Y1081, Y1102, Y1103, Y1139, Y1149, Y1171, Y1172, Y1173, Y1191, Y1192 (Ch. 7R1, 9J1, 9J1A)	509-3
ARKAY	
AM-5	509-4
CAPITOL	
954S	509-5
CHANNEL MASTER	
6600	509-6
CORONADO	
RA48-4053A	509-7
CROWN	
TR-777	509-8
DECCA	
DP-310, DP-311, DP-312	509-9
DP-545, DP-547, DP-640	509-10
EMERSON	
888 Transtimer, 888 Transtimer II (Ch. 120416, 120472)	509-11
GARRARD	
210 (Record Changer)	509-12
MOTOROLA	
OEA60X	509-13
X14B, X14E, X14R, X14W (Ch. HS-795)	509-14
SHERWOOD	
S-4400	509-15
TECH-MASTER	
PA-39	509-16

This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

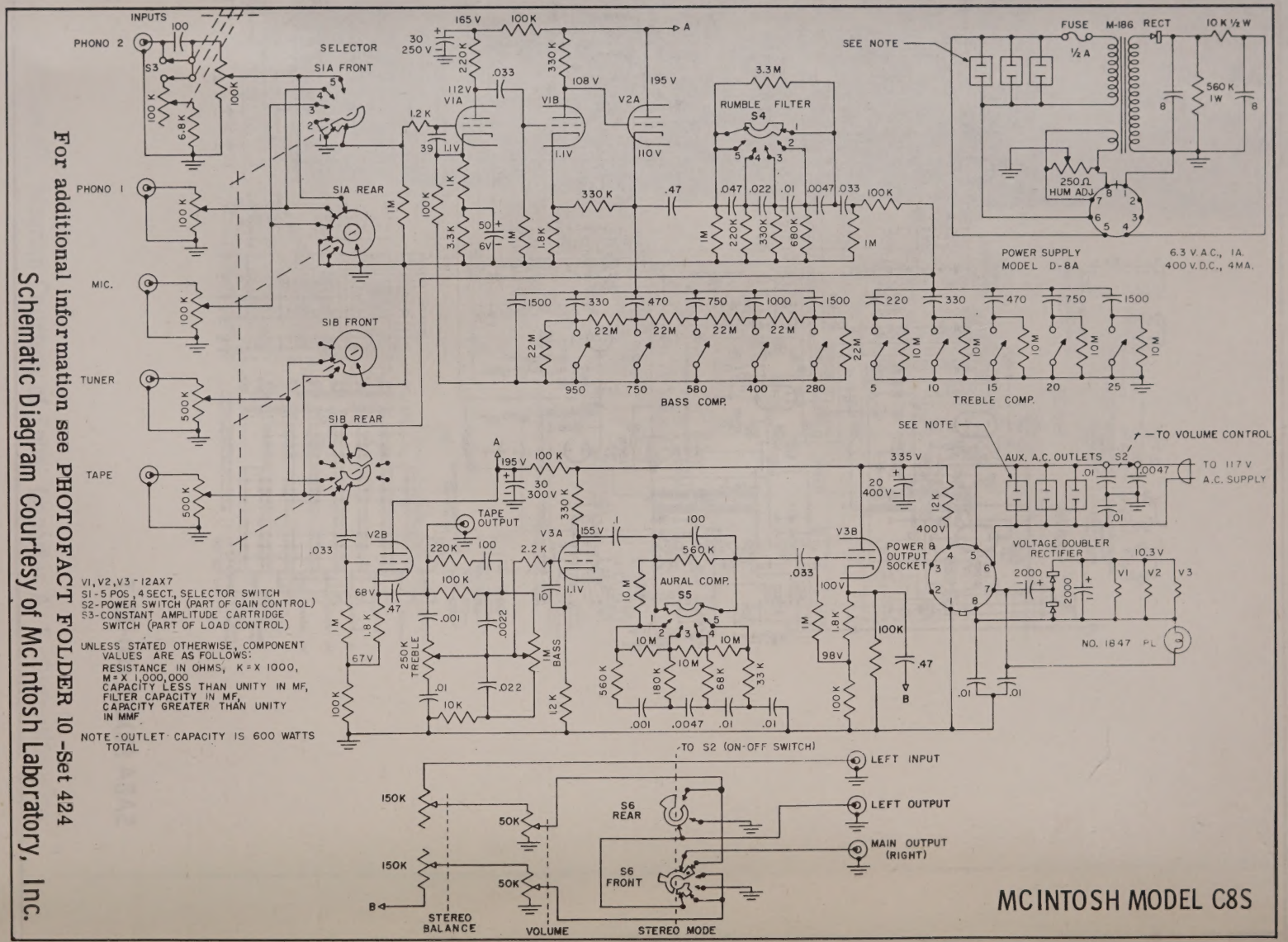
McIntosh Model C8S

Saba Model 400-10-T



SABA MODEL 400-10-T

Schematic Diagram Courtesy of Saba: Importer A. E. Dufenhorst Co.



MCINTOSH MODEL C8S

For additional information see PHOTOFACT FOLDER 10-Set 424

Schematic Diagram Courtesy of McIntosh Laboratory, Inc.

PHOTOFACT® Folder

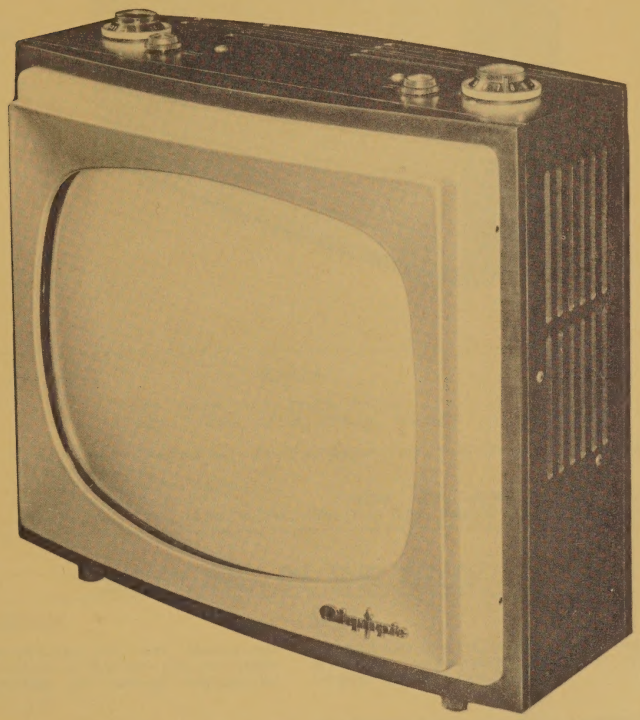
OLYMPIC
CHASSIS JV, JVU

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

OLYMPIC
CHASSIS JV, JVU



MODEL 7TV11
(Ch. JV)

OLYMPIC
CHASSIS JV, JVU

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 509 FOLDER 1

MODEL 7TV11
(Ch. JV)

TRADE NAME	OLYMPIC	MODELS	CHASSIS
		7TV9B, 7TV9M, 7TV10, 7TV11B, 7TV11M	JV
		7TV9BU, 7TV9MU, 7TV10U, 7TV11BU, 7TV11MU	JVU
MANUFACTURER	Olympic Radio & Television Inc., Div. of the Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y.		
TYPE SET	Television Receiver		
TUBES	VHF - Fourteen, UHF - Fifteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	VHF - 150 Watts, 1.4 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 10 wood screws holding rear cover. Remove rear cover. Remove 4 wood screws (2 on each side) from inside cabinet holding front mask. Pull mask and safety glass out front.

FUSE

A fuse is used for LV supply protection. (For location, see M4, "Chassis - Front View".)
A fuse is used for horizontal sweep protection. (For location, see "Tube Placement Chart".)
A fuse wire is used for filament protection. (For location, see M6 in photo "Chassis - Front View".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning Knobs.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see photo "Cabinet - Rear View".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Trimmer. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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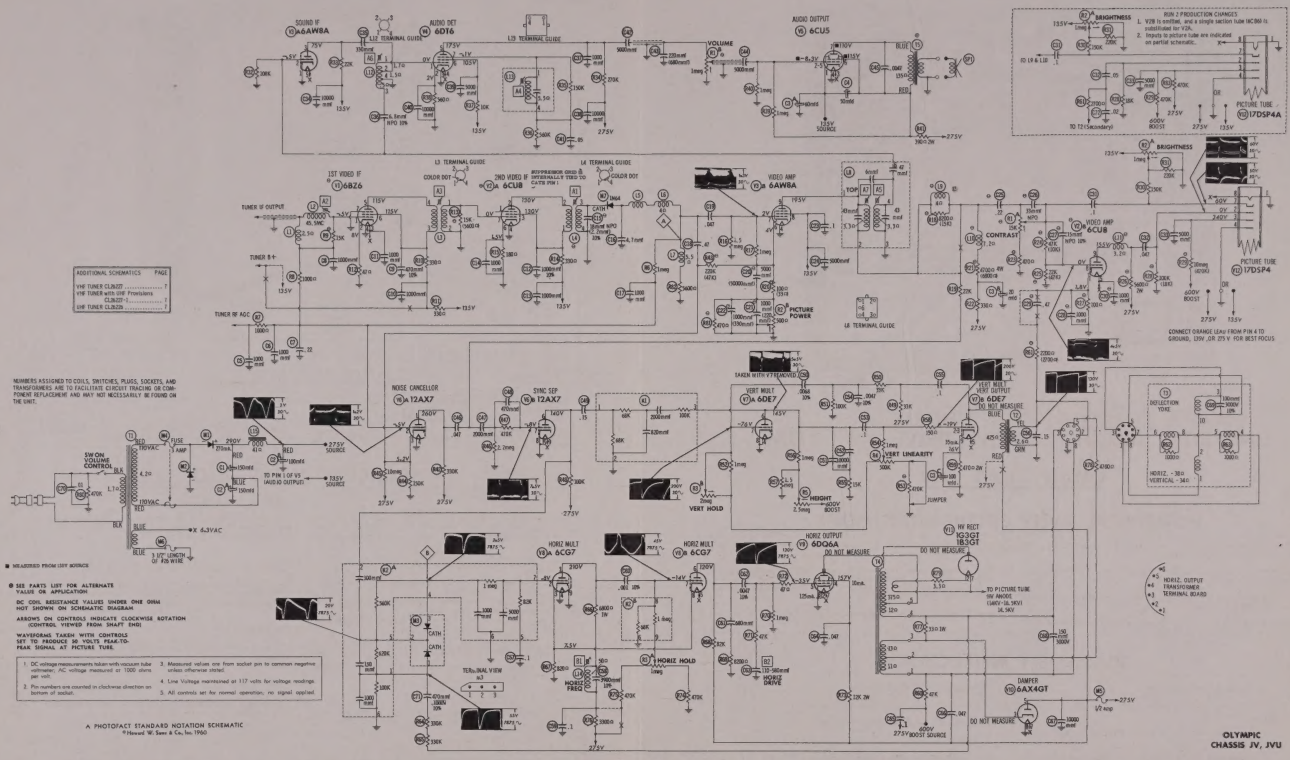
JA945


SOUND IF V1 6AW8A
AUDIO DET V2 6DT6
L12 TERMINAL GUIDE
L13 TERMINAL GUIDE
VOLUME
AUDIO OUTPUT V6 6CU5
BRIGHTNESS
RUN 2 PRODUCTION CHANGES
1. V28 is omitted, and a single section tube V6CB0 is substituted for V28.
2. Inputs to picture tube are indicated on partial schematic.
PICTURE TUBE V20 17DSP4A
1ST VIDEO IF V3 6BZ6
L3 TERMINAL GUIDE
2ND VIDEO IF V4 6CU8
L4 TERMINAL GUIDE
VIDEO AMP V5 6AW8A
VIDEO AMP V7 6CU8
CONTRAST
PICTURE POWER
PICTURE TUBE V21 17DSP4
CONNECT ORANGE LEAD FROM PIN 4 TO GROUND, 135V, OR 275 V FOR BEST FOCUS
TUNER IF OUTPUT
TUNER B+
TUNER RF AGC
ADDITIONAL SCHEMATICS PAGE
VHF TUNER CL5127 7
VHF TUNER with UHF Printed Wiring CL5127-1 7
UHF TUNER CL5129 7
NOISE CANCELLER V8 12AX7
SYNC SEP V9 12AX7
VERT MULT V17 6DE7
VERT MULT / VERT OUTPUT V18 6DE7
DO NOT MEASURE
VERT LINEARITY
HEIGHT
VERT HOLD
DEFLECTION YOKE
HORIZ. - 30Ω
VERTICAL - 34Ω
SW ON VOLUME CONTROL
FUSE 1 AMP
TO PIN 1 OF V5 (AUDIO OUTPUT)
TO PIN 1 OF V5 (AUDIO OUTPUT)
6.3VAC
1 1/2" LENGTH OF #26 WIRE
HORIZ MULT V15 6CG7
HORIZ MULT V16 6CG7
HORIZ OUTPUT V19 6DQ6A
HV RECT 1G3GT 1B3GT
TO PICTURE TUBE HV ANODE (1600 UA, MAX) 16.5KV
HORIZ. OUTPUT TRANSFORMER TERMINAL BOARD
HORIZ FREQ
HORIZ HOLD
HORIZ DRIVE
DAMPER V10 6AX4GT
1/2 amp
275V BOOST SOURCE
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
■ MEASURED FROM 135V SOURCE
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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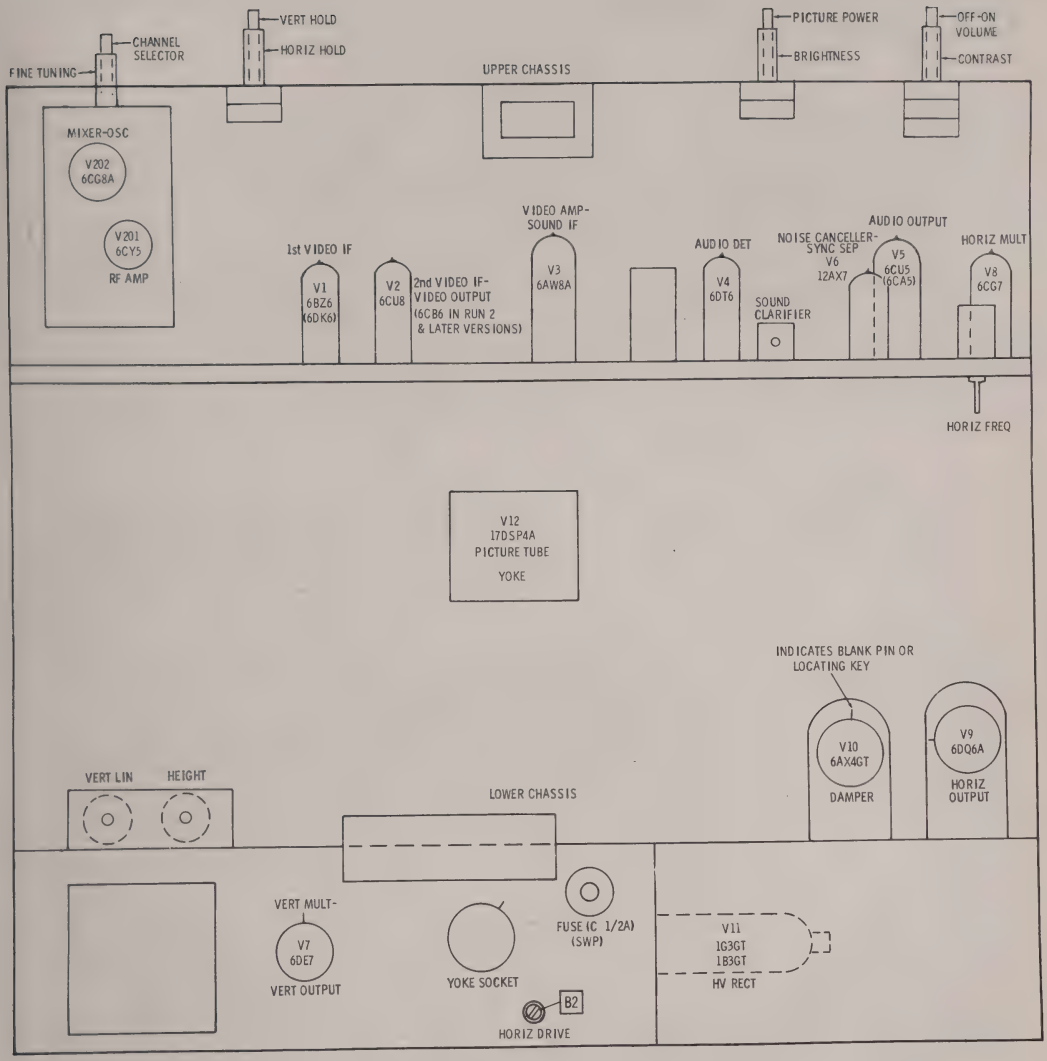
OLYMPIC
CHASSIS JV, JVU

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (LV Supply), Fuse (Filament), Rectifier (B+)

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V14
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, Rectifiers (B+)
Vert. off freq. V7
Horiz. off freq. Diode (Horiz. AFC), V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det.), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V14
Has pic, no sound V3, V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6
No vert. or horiz. sync V6

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1, A2, A3, A5, A7 ..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A4, A6 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519
Mixer Plate Coil ..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	Not used	45.5MC	Any non-interfering channel	Use VTVM DC probe thru 10K to point (A). Common to chassis. (Across Video Det. Load.)	A1, A2	Adjust for maximum deflection.
2.	"	"	43.5MC (45.5MC) *	"	"	A3 and Mixer Plate Coil	"
3.	"	44MC (10MC Swp.)	43.25MC 45.75MC (45.5MC) *	"	Vert. Amp. thru 27K to point (A). Low side to chassis. (Across Video Det. Load.)		Check for response similar to Fig. 1. If necessary, retouch A1 thru A3 and Mixer Plate Coil as required for desired response.

* Alternate setting used in Run 2 and later versions.

SOUND IF ALIGNMENT

Turn the set on and tune in a strong TV signal. Adjust A4 for maximum volume.
Disconnect the antenna and if necessary, insert an attenuator in series with the antenna to provide a weak signal.
Adjust A5 and A6 for maximum volume. (A weak signal is necessary to make the peaks distinguishable).
Reconnect the antenna directly for a strong signal and retouch A4 for maximum undistorted sound.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible.
Adjust A7 for MINIMUM beat interference.

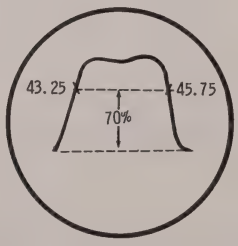
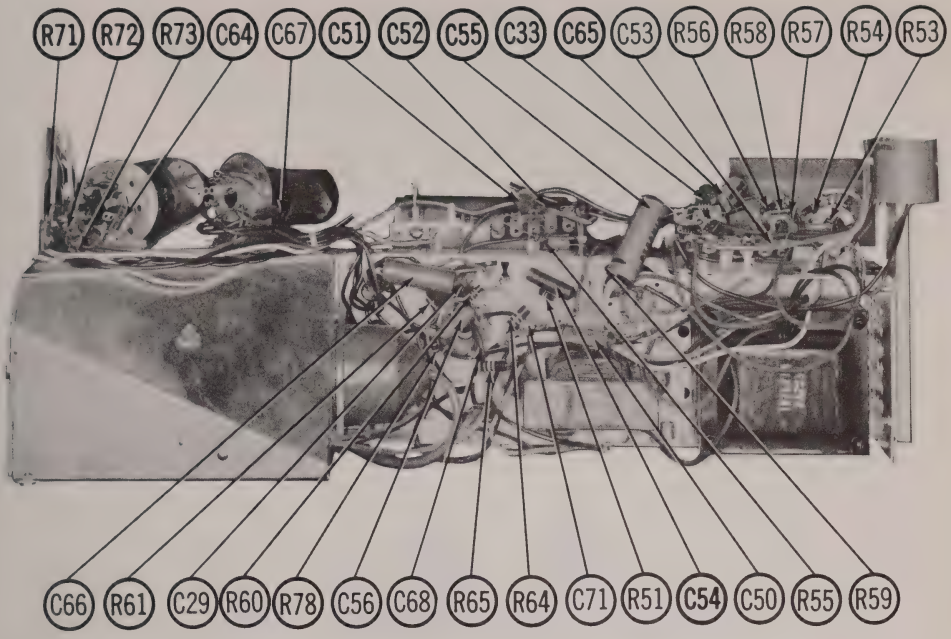
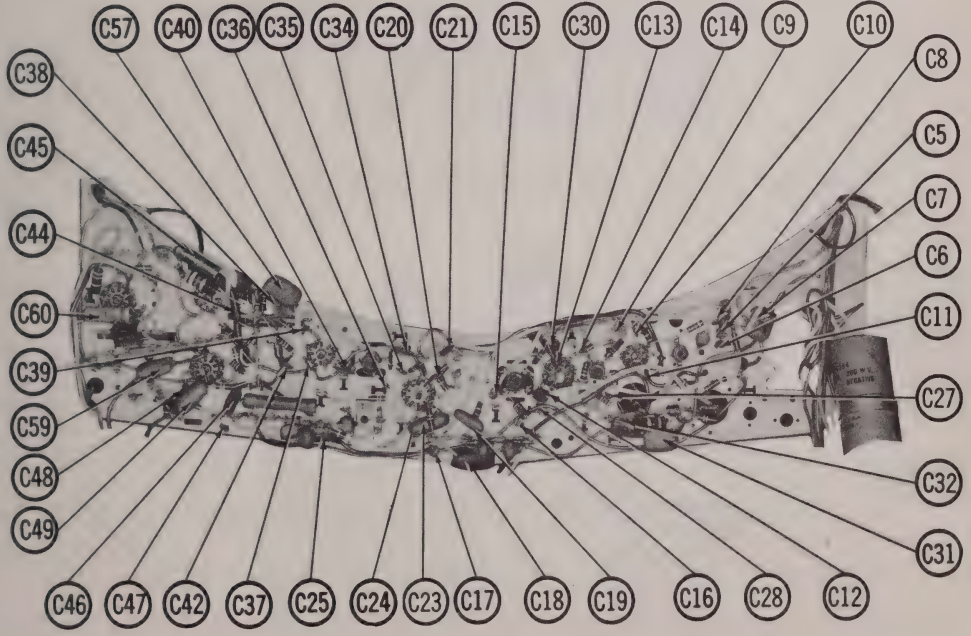


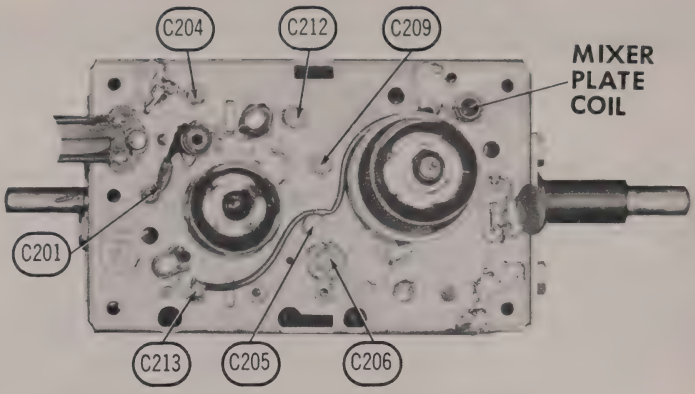
FIG.1



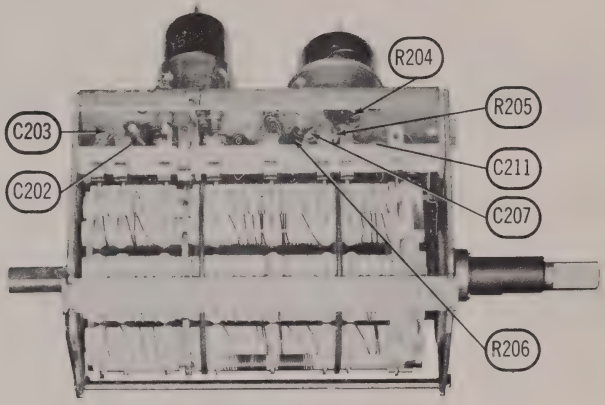
LOWER CHASSIS - CAPACITOR & RESISTOR IDENT.



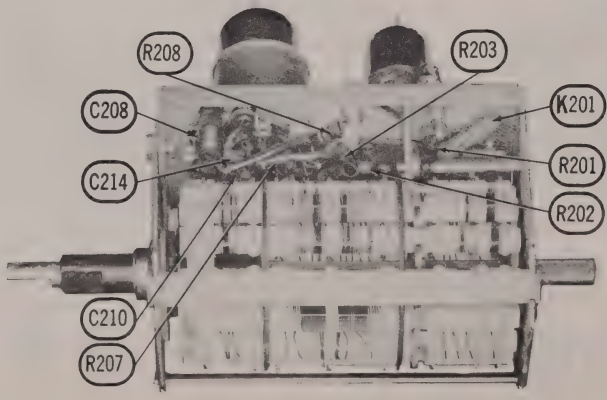
UPPER CHASSIS - CAPACITOR IDENT.



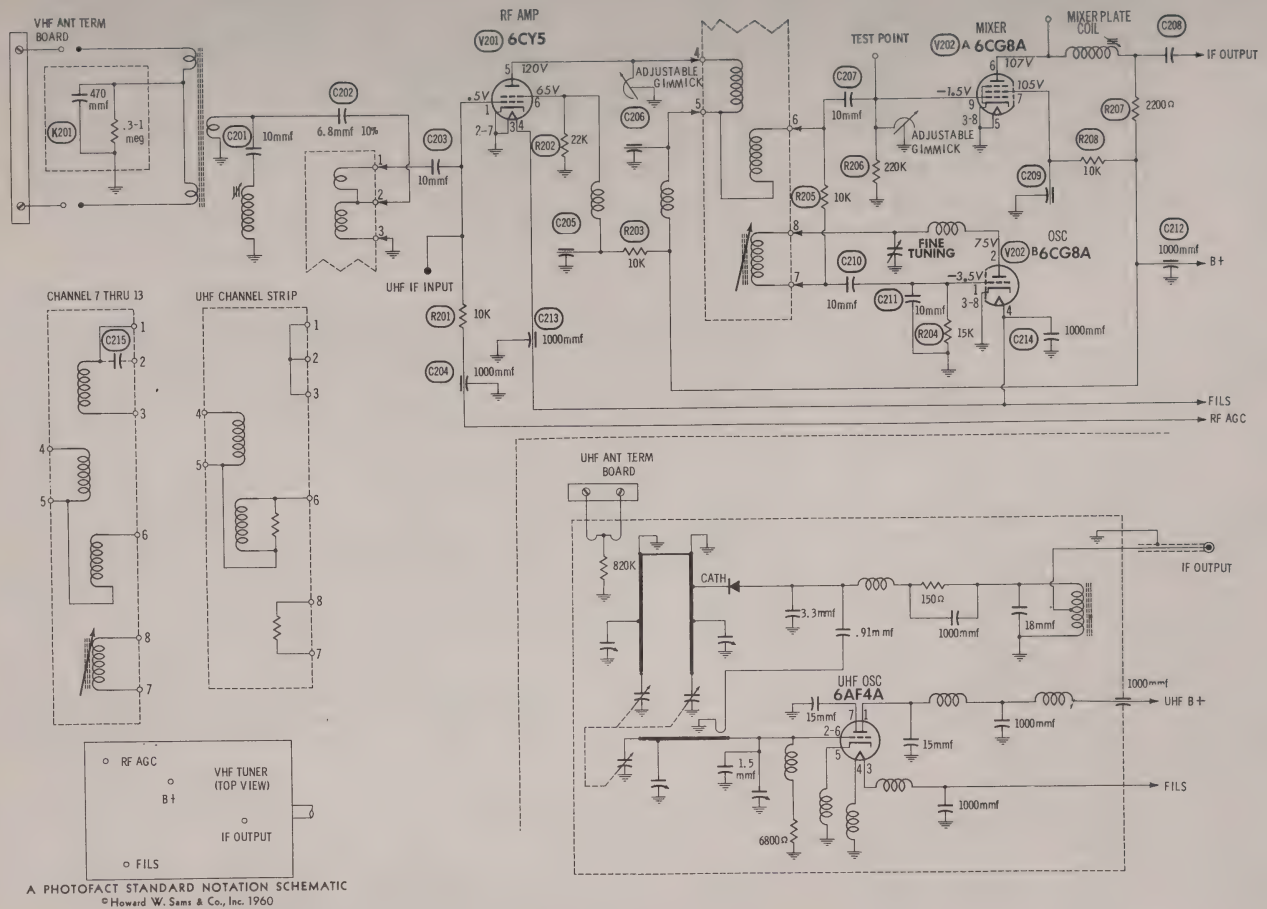
VHF TUNER with UHF Provisions CL26227-1 - TOP VIEW



VHF TUNER with UHF Provisions CL26227-1 - LEFT SIDE



VHF TUNER with UHF Provisions CL26227-1 - RIGHT SIDE



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER CL26227 & VHF TUNER with UHF Provisions-CL26227-1

UHF TUNER CL26226

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No	GENERAL ELECTRIC	TYPE	RAYTHEON	TYPE	SYLVANIA	TYPE
V1	1st Video IF Amp	6BZ8 (6DK8) *	V7	Vert. Mult.	6DT7	
V2	2nd Video IF - Video Amp.	6CU8 Note 1	V8	Vert. Output	6CQ7	
V3	Sound IF - Video Amp.	6AW8A	V9	Horiz. Mult.	6DQ8A	
V4	Audio Det.	6U7S	V10	Horiz. Output	6JA8A	
V5	Audio Output	6CU5 (6CA5) *	V11	Damper	6AX4GT	
V6	Noise Canceller - Sync Sep.	12AU7	V12	HV Rect.	(5U3GT/12BQT)	

Note 1. In Rca 3 and later versions, V1A becomes 6CB6, V2B is omitted. * Alternate.

PICTURE TUBE

ITEM No	REPLACEMENT DATA					NOTES
	OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V14	17DEP4		17DEP4A ①			① Aluminized

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA OLYMPIC PART No.	ASEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	150	200	EC0E2W8	PRI-100		WS8ST	TD-150-300	TVA-1647 *	
C2A	150	250	CU2E2W9	PR2-750	BBRD2S6	WD8ST	CUD-D-150	TVA-2690 *	
B	100	350							
C3A	80	250	CO3E5J4	PR3-085	BBRL0S76	TCD3S08		TVA8-3640 *	
B	20	350			BBR2S35	TC2S05			
C	20	25							
C4	50	350	EE5E5H-2	PRE585	BR5025	TC59	TD-50-450	TVA-1713	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING	REMARKS	REPLACEMENT DATA OLYMPIC PART No.	ASEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	1000		BPD-001	DD-102	BYA101E	CCD-102	GP320	S1E-D50	
C6	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C7	.22 200V		P2S1H-22		CUS2F22	S2F4-224	GEM-3022	S7M-P22	
C9	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C9	470	10%	D5-470	DD-471	S8GT47	CCD-471	GP347	S7T8-T47	
C10	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C11	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C12	1000	10%	DI-1000	DD-102	L10DI	CCD-102	GP320	S7T8-D50	
C13	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C14	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C15	18	NPO 10% (3.8mmf) ①	NPO-18 4.7	CC8-18	CUQ2S0C	CCD-180	CNO-618	S7TCC-428	
C16	4.7		NPO-IS 4.7	TCZ5-4S7	CU5Y47C	CCT0-4R7	CNO-547	S7TCC-747	
C17	1000		BPD-001	DD-102	BYA101E	CCD-102	GP320	S1E-D50	
C18	.47 200V		P2S1H-47		CUS2F47	S2F4-474	GEM-3047	S7M-P47	
C19	.047 600V		P4S1H-047	DD-503	CUS4S47	S2P4-473	GEM-4147	S7M-S47	
C20	5000	(50000mmf) ①	BPD-005	DD-502	BYA101D	CCD-502	GP320	S1E-D50	
C21	1000	(120mmf) ②	BPD-001	DD-102	BYA101E	CCD-102	GP320	S1E-D50	
C22	1000	(390mmf) ③	BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C23	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C24	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C25	.22	400V	P4S1H-22		CUS4P22	S2P4-224	GEM-3022	S7M-P22	
C26	33	NPO ⑤	NPO-33 S3	DT2E-33		CCT0-330	CNO-633	S7TCC-433	
C27	15	NPO 10%	NPO-2I 5	DT2E-15	CU5Q5S	CCT0-150	CNO-615	S7TCC-425	
C28	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C29	.47	200V	P2S1H-47		CUS2F47	S2P2-474	GEM-3047	S7M-P47	
C30	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C31	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C33	.047	600V	P4S1H-047	DD-503	CUS4S47	S2P4-473	GEM-4147	S7M-S47	
C33	5000		BPD-005	DD-502	BYA101D	CCD-502	GP320	S1E-D50	
C34	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C35	330		BP3-00033	DD-331	L10TS3	CCD-331	GP333	S7TS-T33	
C36	6.8	NPO 10%	NPO-2I 6.8	DT2E-6S8	CU2Y6SC	CCT0-6R8	CNO-568	S7TCC-768	
C37	1000		BPD-001	DD-103	BYA101H	CCD-103	GP320	S1E-D50	
C38	10000		BPD-01	DD-103	BYA103E	CCD-103	GP320	S1E-S03	
C39	5000		BPD-005	DD-502	BYA101D	CCD-502	GP320	S1E-D50	
C40	10000		BPD-01	DD-103	BYA103E	CCD-103	GP312	S1E-S03	
C41	.05	50V	P2S1H-05		CUP3S3	CUP3-503	GEM-415	S7M-S5	
C42	5000		BPD-005	DD-502	BYA101D	CCD-502	GP320	S1E-D50	
C43	330	(680mmf) †	BP3-00033	DD-331	L10TS3	CCD-331	GP333	S7TS-T33	
C44	5000		BPD-005	DD-502	BYA101D	CCD-502	GP320	S1E-D50	
C45	.0047	600V	P4S1H-0047	DD-472	CUS4D47	S2P4-472	GEM-4247	S7M-D47	
C46	.047	600V	P4S1H-047	DD-503	CUS4S47	S2P4-473	GEM-4147	S7M-S47	
C47	5000		BPD-005	DD-502	BYA101D	CCD-502	GP320	S1E-D50	
C48	470		BPD-00047	DD-471	BYA0T47	CCD-471	GP347	S7TS-T47	
C49	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C50	.0068	600V 10%	P6S1H-68		PMS6S8	S2D1-682	GEM-16268	S7M-D68	
C51	10000		BPD-01	DD-103	BYA103E	CCD-103	GP312	S1E-S03	
C52	.035	600V	P6S1H-033		CUD6S3	S2D3-333	GEM-6133	S7M-S35	
C53	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C54	.0047	600V 10%	P6S1H-47		PMS6J47	S2D1-472	GEM-16247	S7M-D47	
C55	.1	600V	P4S1H-1	DF-104	CUS6P1	S2P4-104	GEM-601	S7M-V1	
C56	.15	400V	P4S1H-15		CUS4P15	S2P4-154	GEM-4015	S7M-P15	
C57	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C58	3900	10%	1S6-3932		DS1D39	CM-1SD-392K	MC2481.5	S5D-339	
C59	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C60	500	600V 10%	V6SC5H-50		PMS5K	S1DP-1-051	GEM-6531	S7M-S5	
C61	680		1S6S-6808		1S5T68	CM-1SD-68JM	MC2369	S6S-368	
C62	.0047	600V 10%	V6SC5H-47		PMS5D47	S2D1-473	GEM-16247	S7M-D47	
C63	110-580			Pt. #CT3S36		467			
C64	.047	400V	P4S1H-047	DD-503	CUS4S47	S2P4-473	GEM-4147	S7M-S47	
C65	.1	400V	P4S1H-1	DF-104	CUS4P1	S2P4-104	GEM-401	S7M-P1	
C66	.047	600V	P4S1H-047	DD-503	CUS4S47	S2P4-473	GEM-4147	S7M-S47	
C67	10000		BPD-01	DD-103	BYA103E	CCD-103	GP312	S1E-S10	
C68	150	3000V	HYD-3S-150	DD20-151	HYB30T15	3CCD-151	6SV-S5	30GA-T15	

FIXED CAPACITORS (cont)

ITEM No	RATING	REMARKS	REPLACEMENT DATA ASEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C69	100 3000V 10%	Pt. #CO3T81	P6S8N-01	DS-102	CUD8S1	6DP-S-103	3DY-310	
C70	.01 600V		P6S1H-01	DS-103	CUD6S3	6DP-S-103	GEM-651	S7M-S1
C71	470		DI-470		DD-471	CCD-471	GP347	S7TS-T47

① Used in Run 2 and later versions. ② Not used in Run 3 and later versions. † Alternate Value.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	15K		PT25413	F1-38 *				Contrast Note 1
B	1meg			R2-51	RTV-723	†GU-1508	*CH4173-S	Volume
C	Switch			K2R-1				Power Off-On
R2A	1meg		PT25133	F1-51				Brightness
B	500K			R2-1	RTV-722	†GU-1507	*CH4176	Picture Power
R3A	1meg		PT25130	F1-51				Horiz. Hold
B	2meg			R2-57	RTV-721	††GU-1506	*CH4177	Vert. Hold
R4A	500K		PT25790	VT-59	B47-500E-8	BH-133	FTA501.	Vert. Linearity
B	1Meg			Not Req.	Not Req.	7M4	Not Req.	
R5	2.5meg		PT5004-1	TT-53	B47-2.5meg-8	HLC5	TA2551.	Vert. Height

Note 1. Used in Run 1 only. Run 2 and later versions use 1meg volume w/switch (Part #PT25050).
* Diargard Taper.
† "CONCENTRIXITY" Equivalent: K-1S Kit with Base Elements and Shafts: BH-118, P17-524 (Rear) BH-127, RI-108 (Rear) 76-1 (Switch)
† "CONCENTRIX" Equivalent: K-1S Kit with Base Elements and Shafts (Not available as a factory assembled unit). BH-127, P17-524 (Rear) BH-103, RI-103 (Rear)
†† "CONCENTRIXITY" Equivalent: K-1S Kit with Base Elements and Shafts (Not available as a factory assembled unit). BH-127, P17-524 (Rear) BH-119, RI-103 (Rear)
■ "STA-LOC" Equivalent: FH151, RU8S1, OT8S2, HL8S7, U941
▲ "STA-LOC" Equivalent: FH61L, RU52L, OT8S3, HL8S5.
▲ "STA-LOC" Equivalent: FH61L, RU26L, OT8S3, HL8S5.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING	REMARKS
R6	1meg	
R7	1000Ω	
R8	1000Ω	
R9	15K ①	
R10	330Ω	
R11	250Ω	
R12	47Ω	
R13	15K	(5800Ω) ③
R14	330Ω	
R15	100Ω	
R16	1.5meg	
R17	1meg	
R18	8200Ω	(15K) ②
R19	22K	
R20	100Ω	(39Ω) ②
R21	4700Ω 4W (8800Ω)	② #EE63S0 (RC #FW5-4700Ω
R22	150Ω	
R23	470Ω ①	
R24	47K ①	(10K) *
R25	22K ①	(47Ω) *
R26	5600Ω 2W ②	
R27	100Ω ①	
R28	180K	(18K) ②
R29	10meg	(470K) ②
R30	150K	

ITEM No	RATING	REMARKS
R31	220K	
R32	100K	
R33	33K	
R34	270K	
R35	150K	
R36	560K	
R37	10K	
R38	5600Ω	
R39	1meg	
R40	100Ω	
R41	390Ω 2W	
R42	33K	
R43	220K	(47K) ②
R44	150K	
R45	10meg	
R46	2.2meg	
R47	470K	
R48	100K	
R49	33K	
R50	33K	
R51	100K	
R52	1meg	
R53	470K ①	
R54	1meg	
R55	15K	
R56	1meg	

ITEM No	RATING	REMARKS
R57	1.5meg	
R58	150Ω	
R59	470Ω 2W	
R60	47K	
R61	2200Ω	(2700Ω) ②
R62	100Ω	
R63	1000Ω	
R64	330K	
R65	330K	
R66	6800Ω 1W	
R67	820Ω	
R68	82K	
R69	6200Ω	
R70	1meg	
R71	47K	
R72	47Ω	
R73	12K 2W	
R74	470K	
R75	470K	
R76	3300Ω	
R77	33Ω 1W	
R78	470Ω	
R79	3 3Ω	
R80	470K	
R81	470Ω ①	
R82	5600Ω	

① Not used in Run 2 and later versions. ② Value used in Run 3 and later versions.
* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L2	Shunt Peaking	CL1S38	TV-180	6178	RTC-8593	36uh
L3	1st Video IF	CL4T53	TV-31	6184	RTC-8656	
L3	2nd Video IF	CL4S51	TV-130	6219	RTC-8551	
L4	2nd Video IF	CL4T56 ①	TV-180	6211	RTC-8553	
L5	RF Choke	CK4S25	BC-582	6804	RTC-8516	1.7uh
L6	Series Peaking	CL3S62S	TV-186	6113	RTC-8574	10uh
L7	Shunt Peaking	CL3S42S	TV-196	6130	RTC-8575	160uh
L8A	4.5MC Trap	TR3S16-1				
B	1st Sound IF					
L9	Series Peaking	CL3S43S ②	TV-194	6113	RTC-8574	10uh
L10	Shunt Peaking	CL3S79S ②	TV-186	6181	RTC-8598	340uh
L11	Series Peaking	CL3S43S ①	TV-196	6110	RTC-8573	60uh
L12	2nd Sound IF	CL4G21				
L13	Quadrature Coil	CL3S63-1	TV-134	1618	RTC-8606	

① Run 2 and later versions use Pt. #CL2S63 in this application.
② Run 2 and later versions use 350uh (Pt. #CL3J39) in this application.
③ Run 2 and later versions use 500uh (Pt. #CL3S14) in this application.
④ Not used in Run 2 and later versions.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L14	Horiz. Stabilizer	CL5A64-1	TV-183 *	6210	RC110	RTC-8625	HS-5	WLC-25

FILTER CHOKE

ITEM No	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT (000 $^{m}_{a}$)	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L15	270A	41Ω	.5 Hy.	CK2S651		C-3243 ①		C-35X	① Drill new mounting hole(s).

TRANSFORMER (POWER)

ITEM No	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V	110V	6.3V	TR3S214					
	a 1.4A	a 850A	a 9A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	TR3S216	A-3S6S ①	V084	WC-100 ①	25S72	A-19SX	
T3	Yoke-Horiz. (30MH) (ISΩ)-Vert. (39MH)	CL3S25				T-53 ② ③	T-66-1	
	Rear Cover and Centering Device	TP3S231					YC-150	
	Yoke Clamp	SP3S596						
T4	Horiz. Output	TR3S205	HVO-171					

① Use S to 1 turns ratio. ② Use original rear cover and centering device.
③ Use original yoke plug. Connect yoke terminal #3 to yoke plug pin #3; yoke #4 and #5 to plug #5; yoke #7 to plug #6; yoke #6 to plug #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	2300Ω	3-4Ω	TR-5S20-1A ①	A-3035	A-3331	24S53	S-11X	① Alternate Part #TR5S30-1

SPEAKER

ITEM No	SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA OLYMPIC PART No.	GUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	SK3S563	4A07	

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K1	Vert. Integrator	820mmf, 2000mmf, 68K, 68K, 100K	PC3S648	Centralab PC-358
K2	Horiz. AFC & Mult.	100mmf, 150mmf, 1000mmf, 1000mmf, 4700mmf, 68K, 68K, 100K, 560K, 820K, 1meg, 1meg	PC3S715	Centralab PC-367

RECTIFIERS

ITEM No	RATING CURRENT (Measured)	OLYMPIC PART No.	REPLACEMENT DATA GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	270A	RJ2S325 *		1N1763 *	40K *	SR500 *	* Silicon Diode
M2	270A	RJ2S325 *		1N1763 *	40K *	SR500 *	* Dual Selenium
M3		RJ5S45 *	6GC1 *				

FUSES

ITEM No.	TYPE	RATING	OLYMPIC PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M4	3AG	3A 250V P/T	FU2S647		312003 (3AG 3A 250V P/T)		C2V3	
M5	C	1/2A 250V	FU2S203	FH4344	332.500 (C 1/2A 250V)	346003	C 1/2	HC 3/10 to 1/2
M6	3 1/2"	length of #26 wire						

PARTS LIST AND DESCRIPTIONS (Continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		OLYMPIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M7	1N64		1N60	1N64	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M8	Tuner	CL26227	VHF
	Tuner	CL26227-1	VHF with UHF Provisions
	Tuner	CL26226	UHF

CABINETS & CABINET PARTS

*** (When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

NAME	PART NO.	DESCRIPTION
Safety Glass	MP26278	
Knob	KN26888	Channel Selector, Models 7TV9BU, MU, 7TV10U
Knob	KN26732	Channel Selector, Models 7TV11B, M
Knob	KN26882	Channel Selector, Models 7TV9B, M, 7TV10
Knob	KN26733	Fine Tuning, Models 7TV11B, M
Knob	KN26881	Fine Tuning, Models 7TV9B, M, 7TV9BU, MU, 7TV10, 7TV10U
Knob	KN26734	Off-On Volume, Model 7TV11B, M
Knob	KN26887	Off-On Volume, Models 7TV9B, BU, MU, 7TV10, U
Knob	KN26735	Contrast, Model 7TV11B, M
Knob	KN26736	Picture Power, Vertical Hold, Model 7TV11B, M
Knob	KN26884	Picture Power and Vertical Hold, Models 7TV9B, BU, M, MU, 7TV10, U
Knob	KN26737	Brightness, Horizontal Hold, Models 7TV11B, M
Knob	KN26942	Brightness, Models 7TV9B, BU, M, MU, 7TV10, U
Knob	KN26883	Horizontal Hold, Models 7TV9B, BU, M, MU, 7TV10, U
Knob	KN26890	UHF Tuning, Models 7TV9BU, MU, 7TV10U
Knob	KN26891	Dial Calibrated, Models 7TV9BU, MU, 7TV10U
Cabinet *	CA26620	Models 7TV11B, M, 7TV9B, M, 7TV9BU, MU
Cabinet	CA26806	Charcoal, Model 7TV10
Cabinet	CA26806-1	Mocha, Model 7TV10
Cabinet	CA26806-2	Flame Red, Model 7TV10
Cabinet	CA26806-3	Blue, Model 7TV10
Cabinet	CA26806-4	Charcoal, Model 7TV10U
Cabinet	CA26806-5	Mocha, Model 7TV10U
Cabinet	CA26806-6	Flame Red, Model 7TV10U
Cabinet	CA26806-7	Blue, Model 7TV10U

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUNER PARTS LIST AND DESCRIPTIONS

CL26227–1

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6CY5	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	10		NPO-DI 10	DTZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C202	6.8 10%		NPO-SI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C203	10		NPO-DI 10	DTZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C204	1000		EF-001	MFT-1000		CCF-102	CT280A	
C205								
C206								
C207	10		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C208								
C209								
C210	10		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C211	10		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C212	1000		EF-001	MFT-1000		CCF-102	CT280A	
C213	1000		EF-001	MFT-1000		CCF-102	CT280A	
C214	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	10K	
R202	22K	
R203	10K	

ITEM No.	RATING	REMARKS
R204	15K	
R205	10K	
R206	220K	

ITEM No.	RATING	REMARKS
R207	2200Ω	
R208	10K	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K201	Antenna Filter	470mmf, .3-1meg		Centralab RC-471 Sprague AC1-1

TUNER ALIGNMENT INSTRUCTIONS

CL26227–1

TUNER ALIGNMENT

Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

VHF OSCILLATOR ALIGNMENT

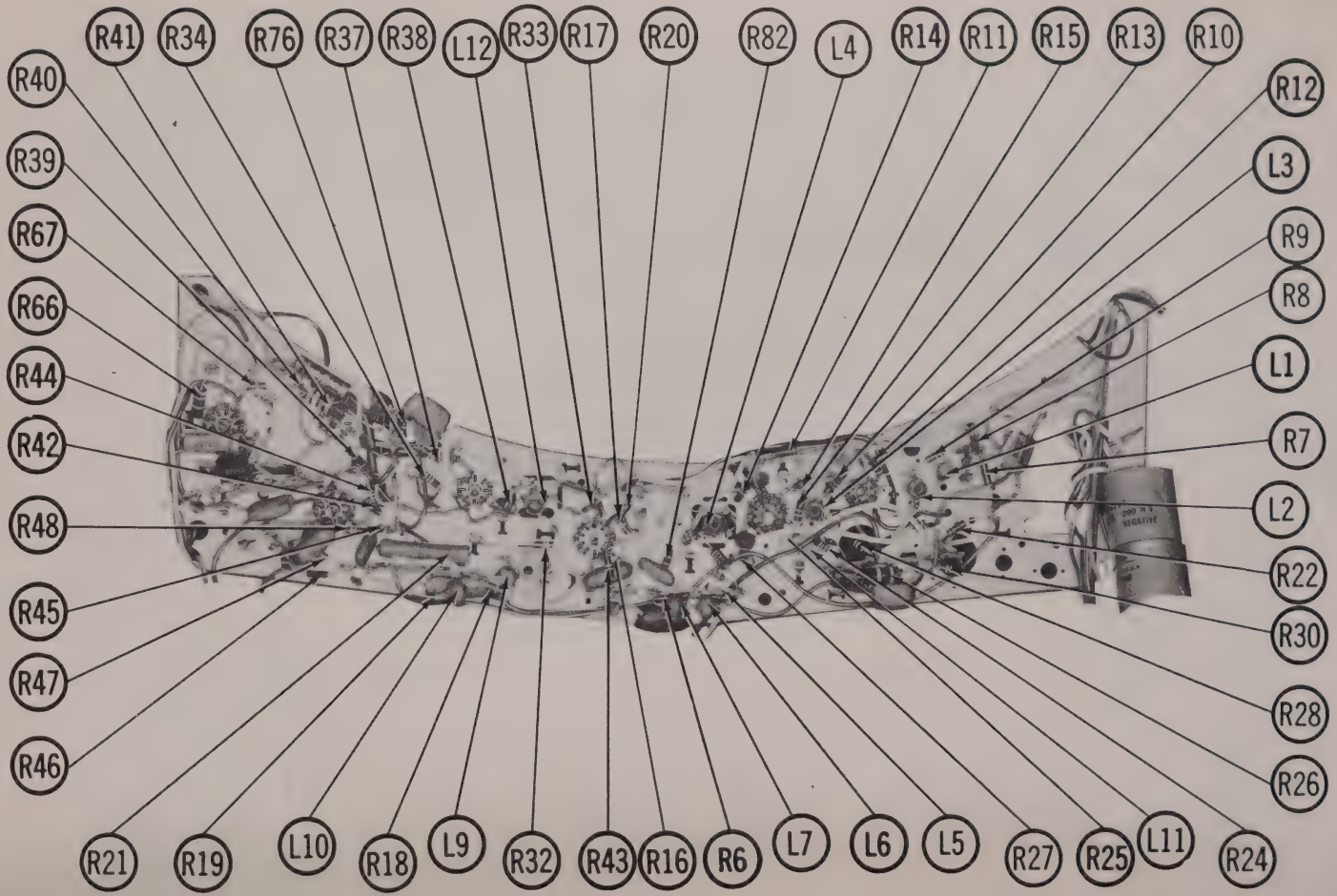
The individual channel adjustment screws are accessible one at a time, thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to channel to be adjusted and adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

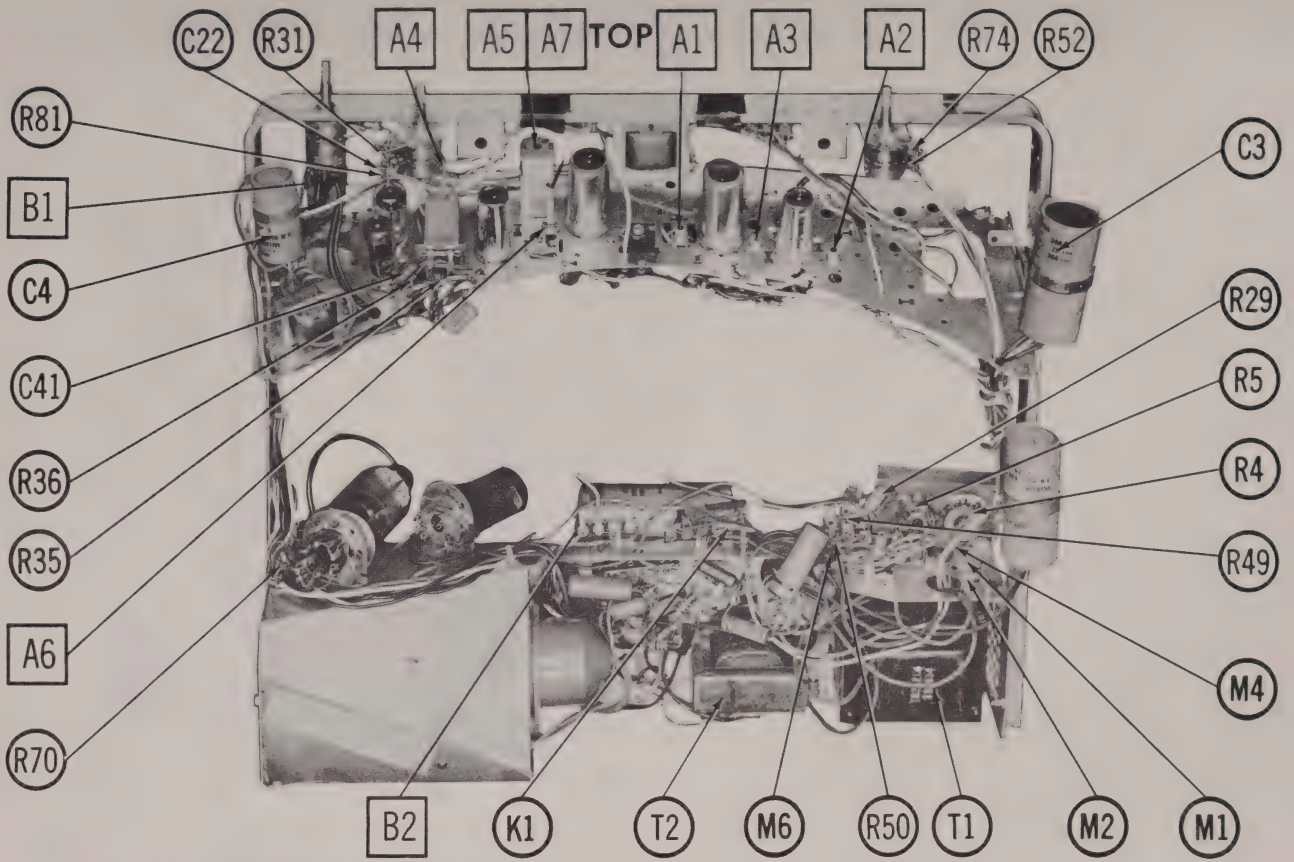
This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

UHF TUNER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



UPPER CHASSIS - RESISTOR & INDUCTOR IDENT.



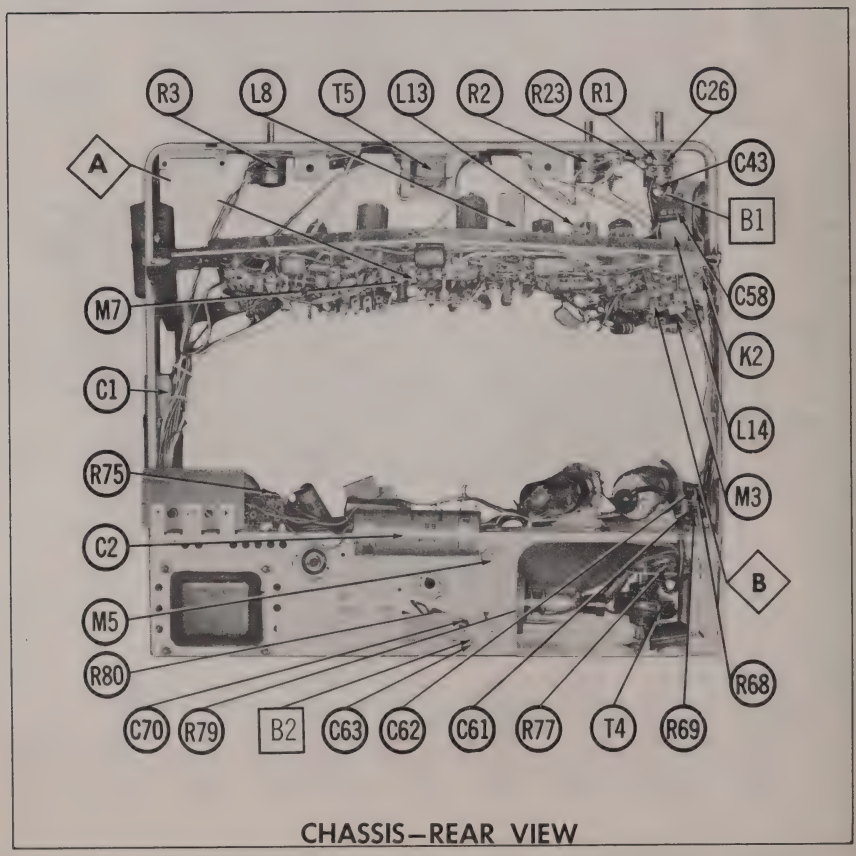
CHASSIS - FRONT VIEW

RESISTANCE MEASUREMENTS

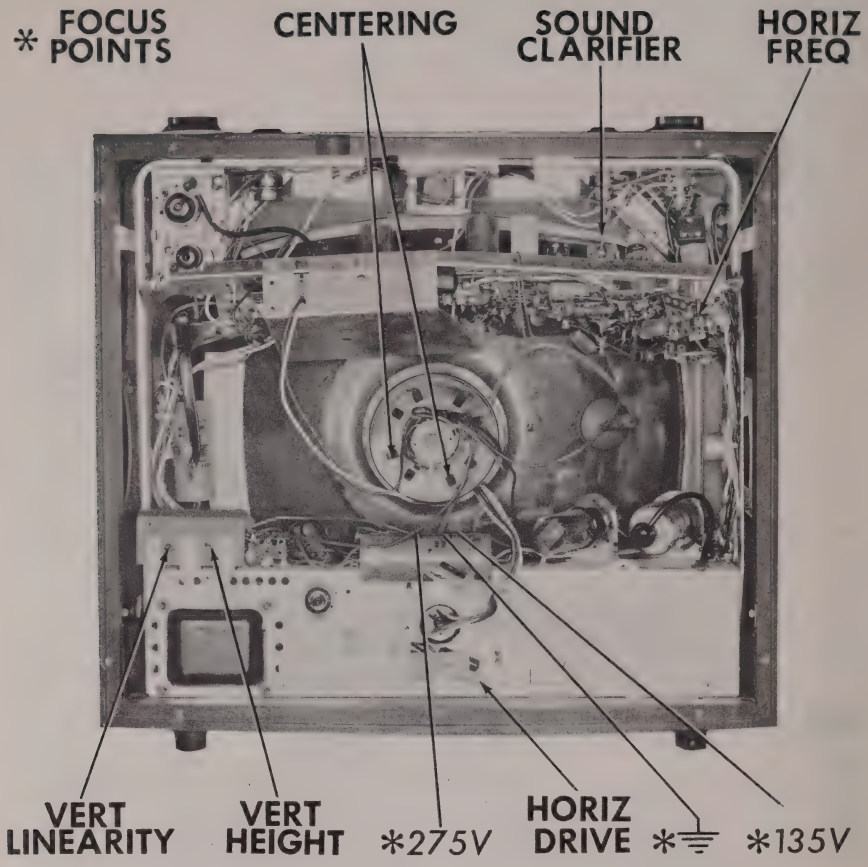
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1meg	47Ω	.1Ω	0Ω	▪660Ω	▪660Ω	0Ω		
V2	6CU8	100Ω	▪330Ω	▪330Ω	0Ω	.1Ω	180Ω	.1Ω	18K	†5600Ω
V3	6AW8A	0Ω	100K	▪22K	0Ω	.1Ω	●230Ω	650K	▪0Ω	†5000Ω
V4	6DT6	3.5Ω	560Ω	0Ω	.1Ω	†270K	▪10K	560K		
V5	6CU5	¶	550K	.1Ω	0Ω	550K	†390Ω	†565Ω		
V6	12AX7	†330K	1meg	100K	0Ω	0Ω	†100K	2.7meg	0Ω	.1Ω
V7	6DE7	†466Ω	1.2meg	1.2meg	0Ω	.1Ω	†● 2meg	●850K	0Ω	470Ω
V8	6CG7	†10K	2.3meg	820Ω	0Ω	.1Ω	†82K	55K	820Ω	NC
V9	6DQ6A	TP	0Ω	NC	†12K	1meg	TP	.1Ω	0Ω	TOP CAP †45Ω
V10	6AX4GT	NC	NC	¶2.5meg	NC	†0Ω	NC	0Ω	.1Ω	
V11	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †420Ω
V12	17DSP4A	0Ω	100K	†10meg	0Ω	NC	NC	●290K	.1Ω	
V201	6CY5	1meg	0Ω	0Ω	.1Ω	▪330Ω	▪10K	0Ω		
V202	6CG8	15K	▪330Ω	0Ω	.1Ω	0Ω	▪2500Ω	▪10K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
▪ MEASURED FROM 135V SOURCE.
† MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION
TP TIE POINT



CHASSIS—REAR VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and allow it to warm up for 2 minutes. Tune in a TV station, preferably with a test pattern.

Connect a clip lead from point (B) to chassis. Connect another clip lead across the Horizontal Frequency Coil (L14).

Adjust the Horizontal Hold until the picture synchronizes horizontally. (It may float back and forth.)

Remove the clip lead from L14. Adjust the Horizontal Frequency Slug (B1) until the picture is again in frequency. Remove clip lead from point (B) and chassis.

Turn Horizontal Drive Trimmer (B2) counterclockwise until a vertical white line (drive line) appears near the center of the screen, then turn clockwise until line just disappears. If drive line cannot be obtained, adjust B2 for proper width.

If B2 is adjusted, recheck adjustment of B1 and Horizontal Hold.

DISASSEMBLY INSTRUCTIONS

PICTURE TUBE REMOVAL

1. Remove 10 wood screws holding rear cover. Remove rear cover.
2. Remove yoke plug, picture tube socket, and high voltage lead.
3. Remove 4 wood screws (2 on each side) from inside cabinet holding front mask. Pull front mask and safety glass straight out front of cabinet.
4. Remove 4 metal screws holding picture tube bracket to cabinet.
5. Pull picture tube straight out front.

CHASSIS REMOVAL MODEL 7TV11M

1. Remove 8 push-on type knobs from top of cabinet.
2. Remove 10 wood screws holding rear cover.
3. Remove rear cover.
4. Remove yoke plug, high voltage lead, speaker lead, and picture tube socket.
5. Remove 2 bolts at top of chassis, and 3 bolts at bottom.
6. Remove chassis.

PHOTOFACT® Folder with CIRCUITRACE®

SYLVANIA CHASSIS 548-1
thru -7, 549-1 thru -9, 550-1,
-2, -3, -7, -9, 552-1, -2, -9

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SYLVANIA CHASSIS 548-1
thru -7, 549-1 thru -9, 550-1,
-2, -3, -7, -9, 552-1, -2, -9

SYLVANIA CHASSIS 548-1
thru -7, 549-1 thru -9, 550-1,
-2, -3, -7, -9, 552-1, -2, -9

MODEL 23C28 (CH. 549-7)

SET 509 FOLDER 2

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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DISASSEMBLY INSTRUCTIONS
PAGE 3

CAUTION
ONE SIDE OF AC LINE
CONNECTED TO CHASSIS.

MODEL 23C28 (CH. 549-7)

TRADE NAME	SYLVANIA	MODELS	CHASSIS
		17D13R, T, 17D14W, 17D15R, T, 17D17R, W, 17D18T, W, 17D19G, S	548-1 thru 7
		21C07, 21C09, 23C08, 23C09, 23C10, 23C11, 23C18, 23C20B, M, W, 23C26, 23C27, 23C28, 23C29, 23M10l, 23T09B, M, 23T10, 23T11, 23T12, 23T13B, M, 23T14B, M, W	549-1 thru 9
		23T15E, 23T16B, M, W	550-1, -2
		23C30B, M, W, 23C31B, F, M, 23C32B, F, M, W, 23C34B, M, W, 23T17B, M, W	550-1, -2, -9
		23C35, B, F, M, W, 23C37F	550-2, -3, -9
		23C33B, M, W, 23C36B, M, W, 23C38F, W, 23C39F	550-7
		19T01B, F, W	552-1, -2, -9
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700 Ellicott St., Batavia, N. Y.		
TYPE SET	Television Receiver - Models 17D19G, S, 23C11, 23C28, 23C33B, M, W, 23C36B, M, W, 23C38F, W, and 23C39F with Remote Control		
TUBES	TV: VHF - Sixteen, UHF - Seventeen; Remote Control Receiver - One		
TRANSISTOR	Remote Control Transmitter - One		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycle		
RATING	VHF: 180 Watts, 1.8 Amp. @ 117 Volts AC (with Remote, while Tuning) 165 Watts, 1.6 Amp. @ 117 Volts AC (with Remote, Not Tuning) 155 Watts, 1.5 Amp. @ 117 Volts AC (TV Only)		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 3 screws holding the trim strip at the bottom edge of the safety glass. Tilt glass out and remove.

FUSE

Remote Control Receiver: A 1/4 Amp. fuse is used for receiver protection. (For location, see M9 in photo "Receiver - Bottom View".)

FUSE DEVICE

TV: A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up the VHF Oscillator, it is necessary to remove the Tuner and Remote Control Receiver mounting assem. (See "Disassembly Instructions".)

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by means of a Focus Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width Control. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector Secondary (All) located at bottom of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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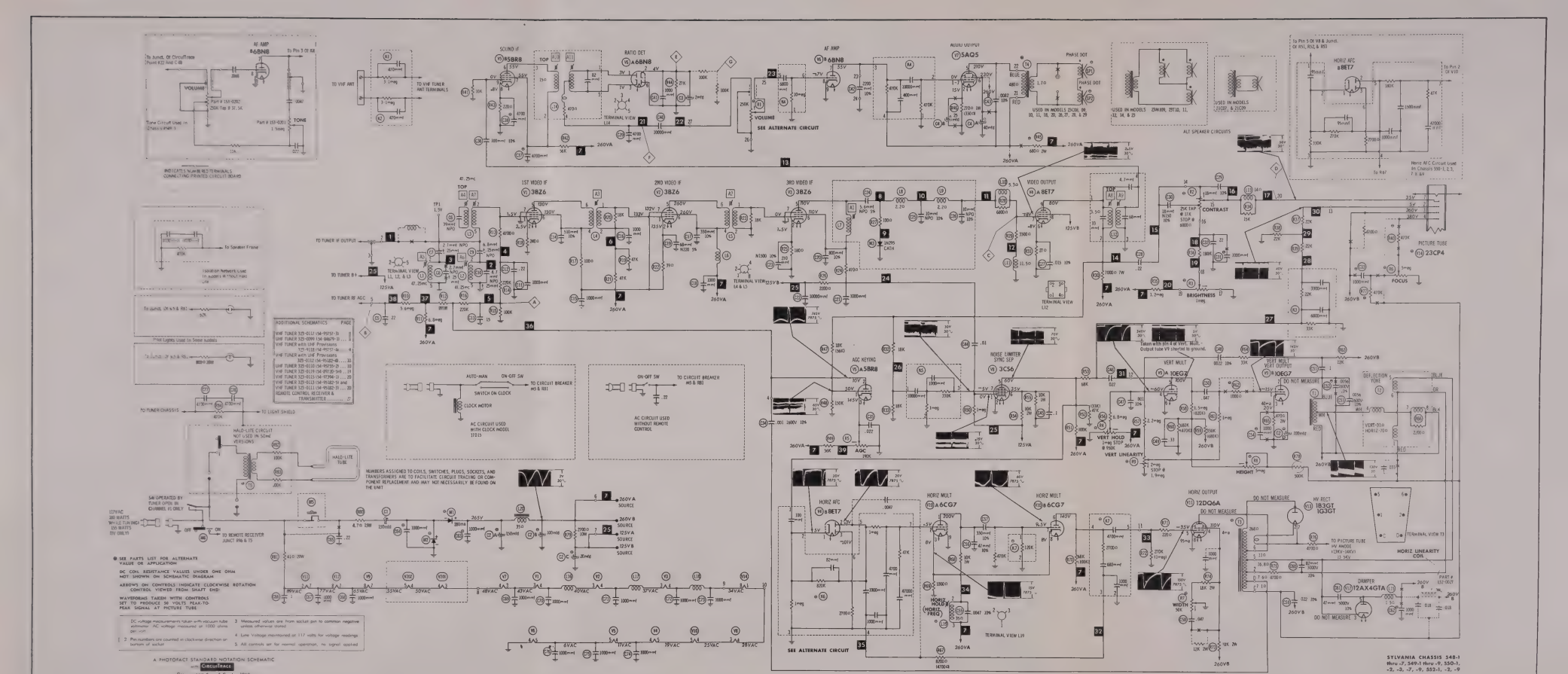
SYLVANIA CHASSIS 548-1
thru -7, 549-1 thru -9, 550-1,
-2, -3, -7, -9, 552-1, -2, -9

SET 509 FOLDER 2


SYLVANIA CHASSIS 548-1
Hkns -7, 549-1 Hkns -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9
SEE ALTERNATE CIRCUIT
SEE ALTERNATE CIRCUIT
A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE
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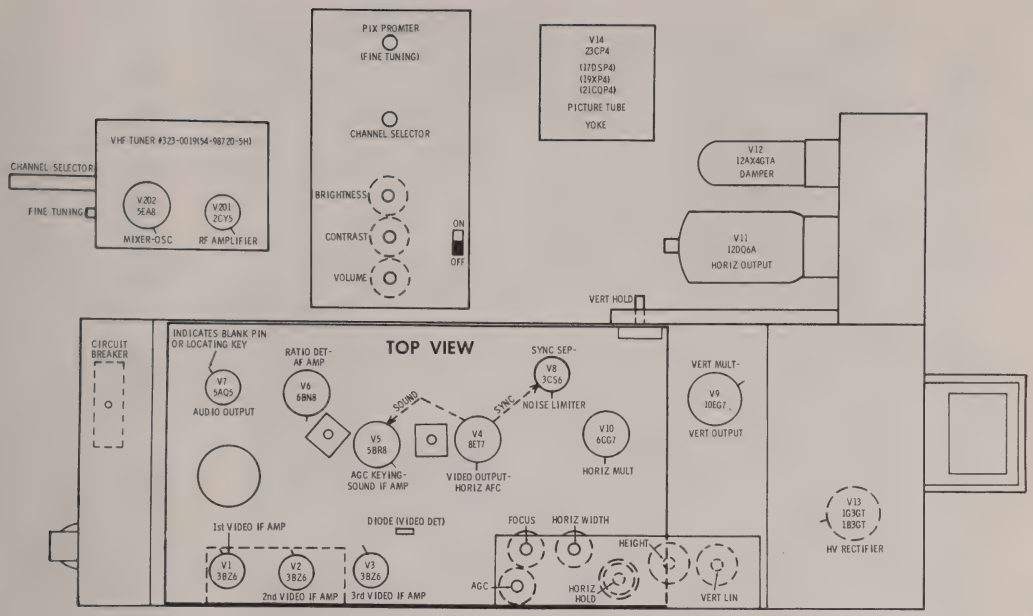
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

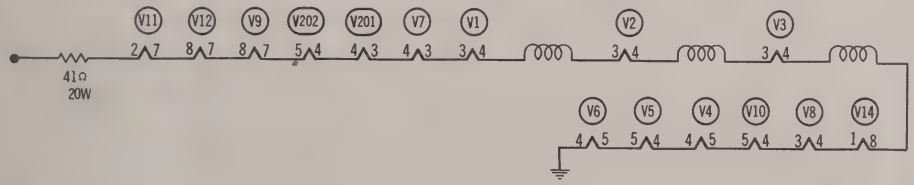
POWER SUPPLY FAILURE
No raster, no sound Rectifiers (B+), Circuit Breaker

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rectifiers (B+)
Vert. off freq. V9
Horiz. off freq. V4, V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V5, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V8
No horiz. sync V8
No vert. or horiz. sync V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 23C28

1. Remove 4 wood screws holding rear cover.
2. Remove rear cover.
3. Remove wood screw holding vertical hold control.
4. Remove 2 wood screws holding halolight switch.
5. Remove ground wire from picture tube mounting bracket to halolight switch. Remove 2 wires from halo switch to terminals on chassis.
6. Remove picture tube socket, yoke, high voltage lead, speaker leads, and VHF Tuner leads.
7. Loosen 2 screws holding chassis, slide chassis back and lift out.

VHF TUNER & REMOTE CONTROL RECEIVER REMOVAL

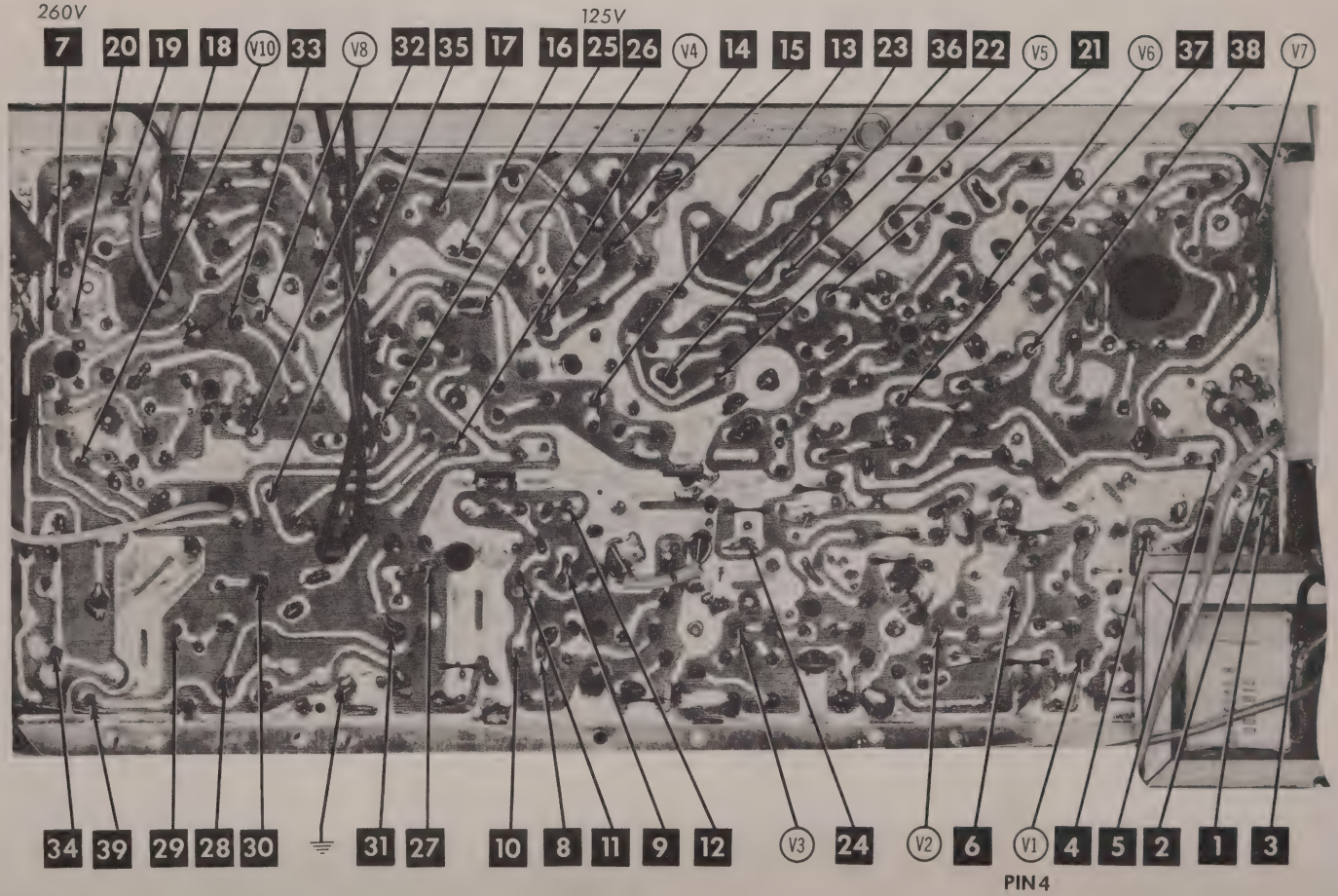
1. Remove 2 screws at back of cabinet (at top) while supporting Tuner and Remote Control Receiver mounting assembly.
2. Remove assembly.

PICTURE TUBE REMOVAL

It is necessary to remove the Chassis for Picture Tube removal.

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

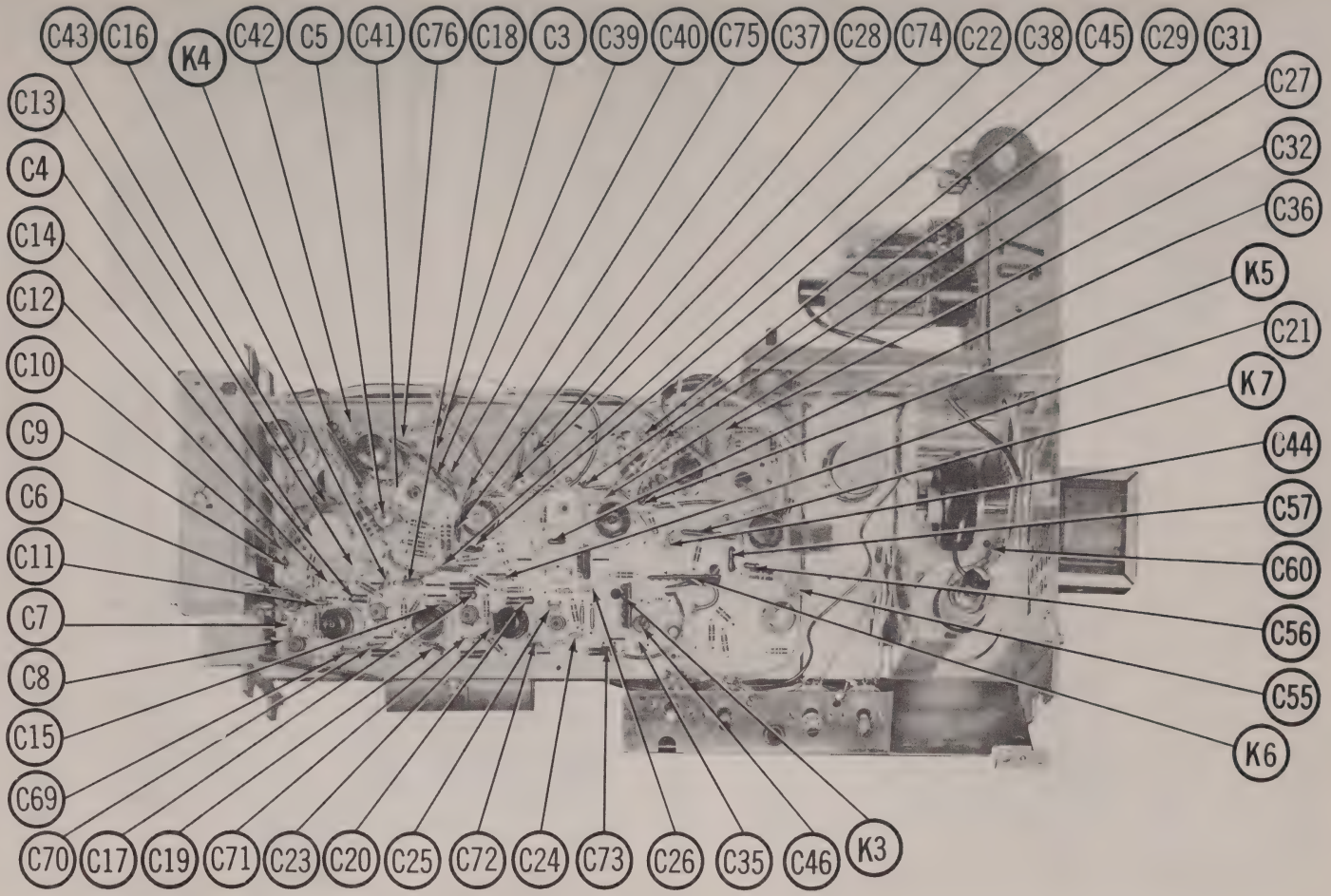
FOLDER 2



A Howard W. Sams CIRCUITRACE® Photo

TV PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

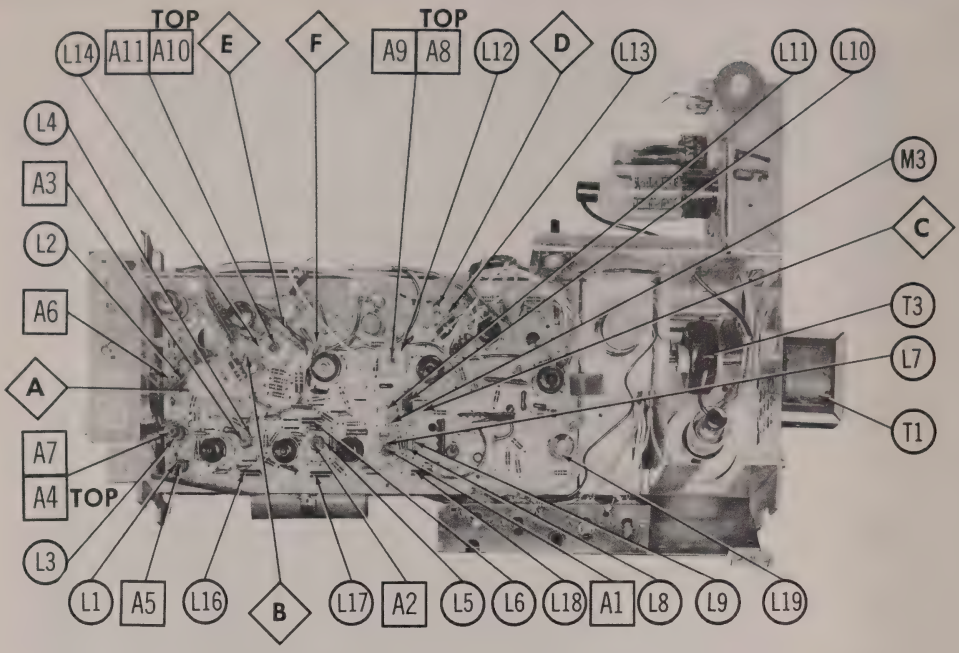


TV CHASSIS TOP VIEW - CAPACITOR & MISC. IDENT.

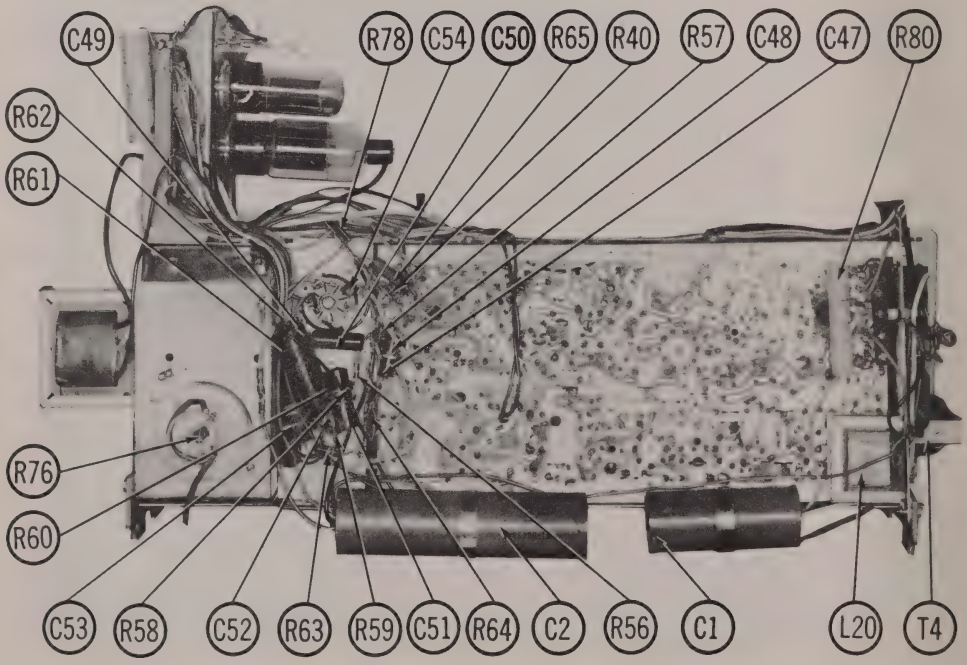
SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

FOLDER 2

SET 509 FOLDER 2



TV CHASSIS TOP VIEW - ALIGN., INDUCTOR, & MISC. IDENT.



TV CHASSIS - BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3.5 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 25 volts bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Detune Mixer Plate Coil by turning core fully counterclockwise.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru 4700mmf disc ceramic capacitor to pin 1 (grid) of 1st Video IF. Low side to chassis.	44.0MC (10MC Swp)	42.6MC 45.75MC	Any non-interfering channel	Vert. Amp. to point (C). Low side to chassis.	A1, A2, A3	Adjust for response similar to Fig. 1. A1 controls tilt, A2 controls placement of 45.75MC marker and A3 controls placement of 42.6MC marker.
2.	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	47.25MC	"	"	A4, A5	Detune A5, then adjust A4 for maximum dip at marker. Adjust A5 for maximum dip at marker. (See Fig. 2).
3.	"	"	41.25MC	"	"	A6	Adjust for maximum dip at 41.25MC marker.
4.	"	"	42.6MC 45.75MC	"	"	Mixer Plate Coil, & A7	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. If necessary, retouch A1 and A3 SLIGHTLY for desired response.

4.5MC TRAP ALIGNMENT

Set Contrast control fully clockwise, and Brightness control fully counterclockwise.
Connect the negative lead of a 30 volt bias supply to point (A). Positive to chassis.
Connect a 4.5MC series tuned circuit between point (D) and chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .001mfd to point (C). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	RF probe across coil of 4.5MC series tuned circuit	A8	Adjust for MINIMUM deflection.

ALTERNATE 4.5MC TRAP ALIGNMENT USING ON THE AIR SIGNAL

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A8 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (E) to chassis. The junction of these two resistors is alignment point (G) as shown on the schematic.
Connect the negative lead of a 30 volt bias supply to point (A). Positive to chassis.
Set Contrast control fully clockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .001mfd to point (C). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 100K to point (E). Common to chassis.	A9, A10	Adjust for maximum deflection.
7.	"	"	"	DC probe to point (F). Common to point (G).	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

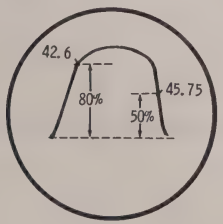


FIG. 1

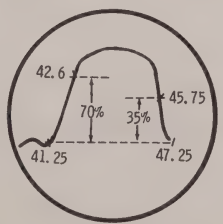


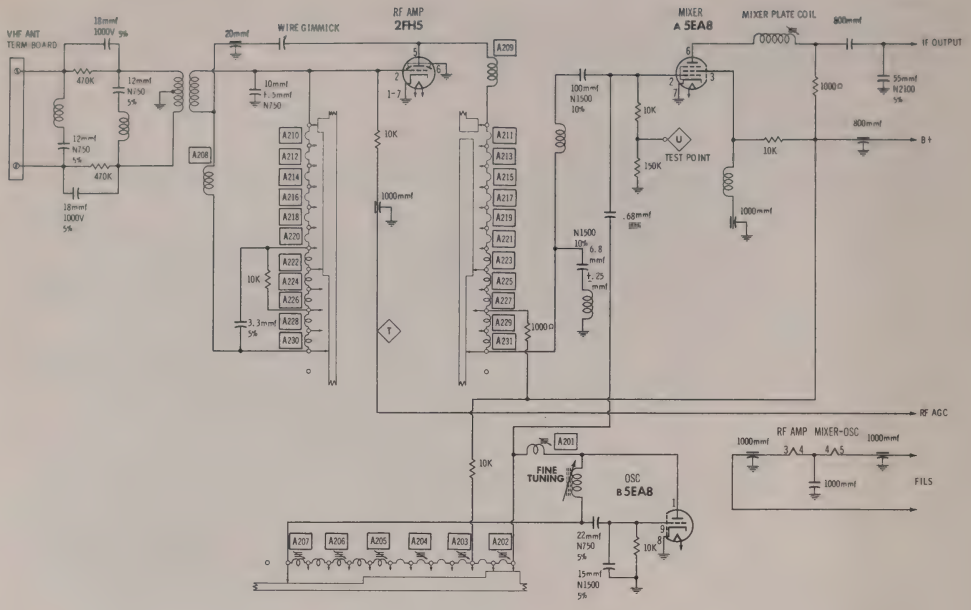
FIG. 2

TUNER ALIGNMENT INSTRUCTIONS PAGES 21, 22, 23

SET 509 FOLDER 2

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

FOLDER 2



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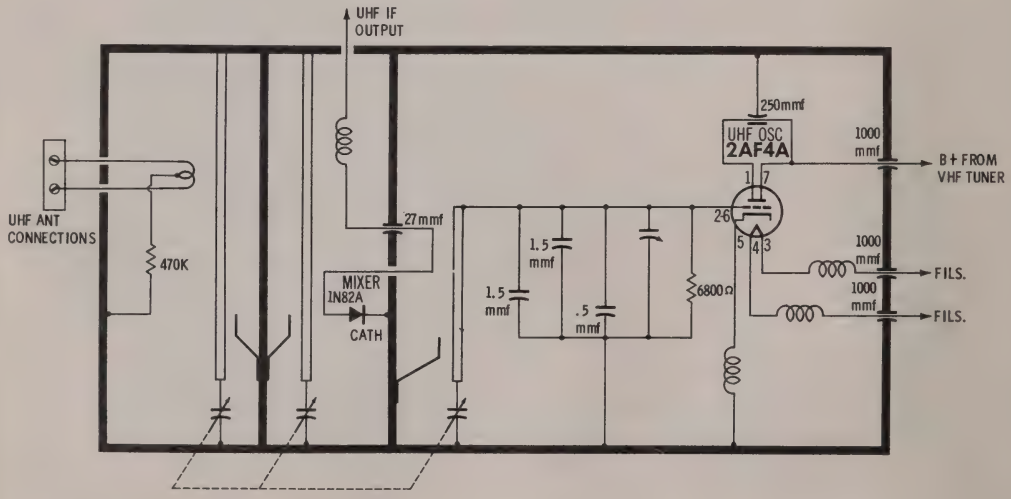
VHF TUNER 323-0117 (54-95757-3)



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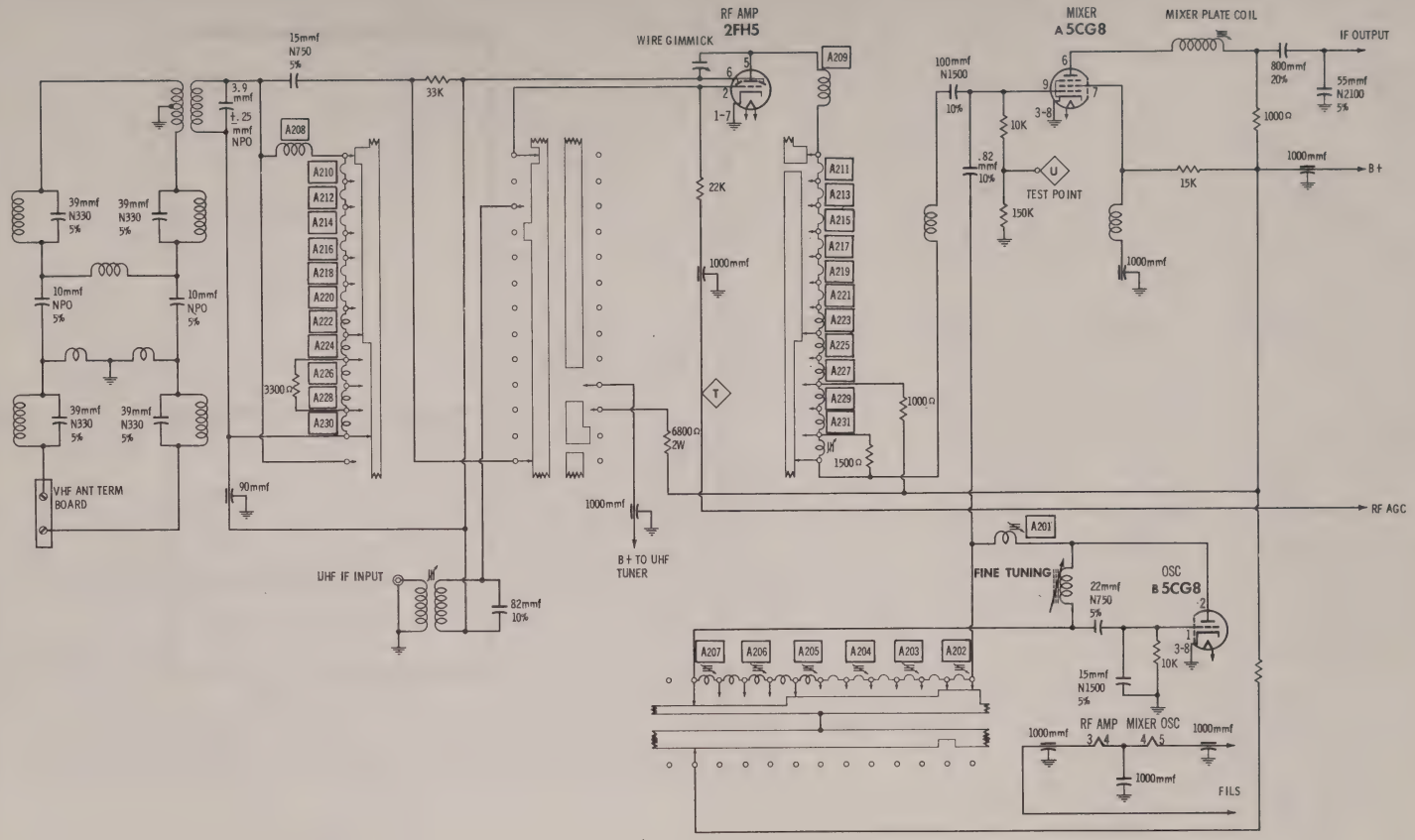
UHF TUNER 323-0099 (54-84679-1)



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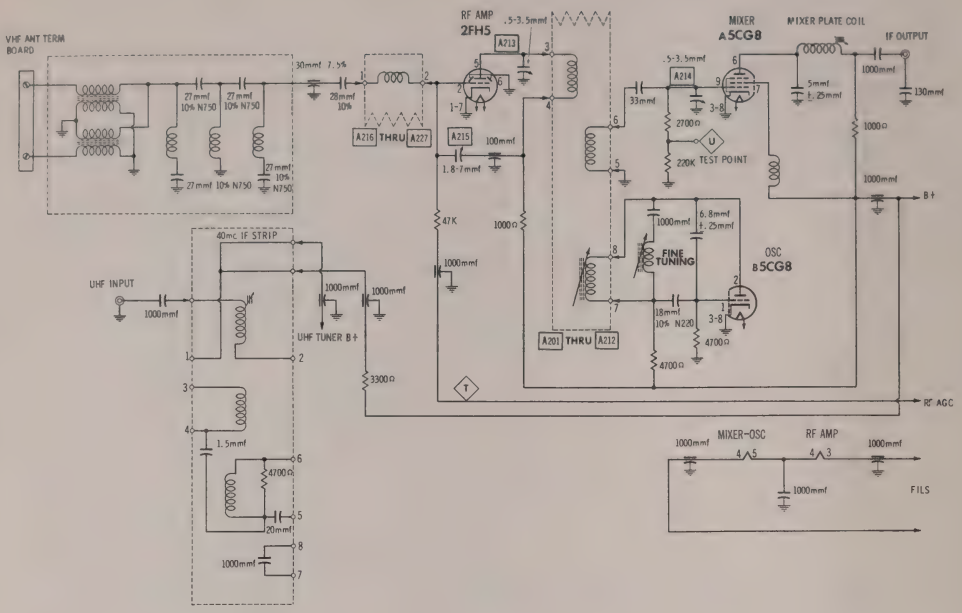
VHF TUNER with UHF Provisions - 323-0118 (54-95757-4)

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9



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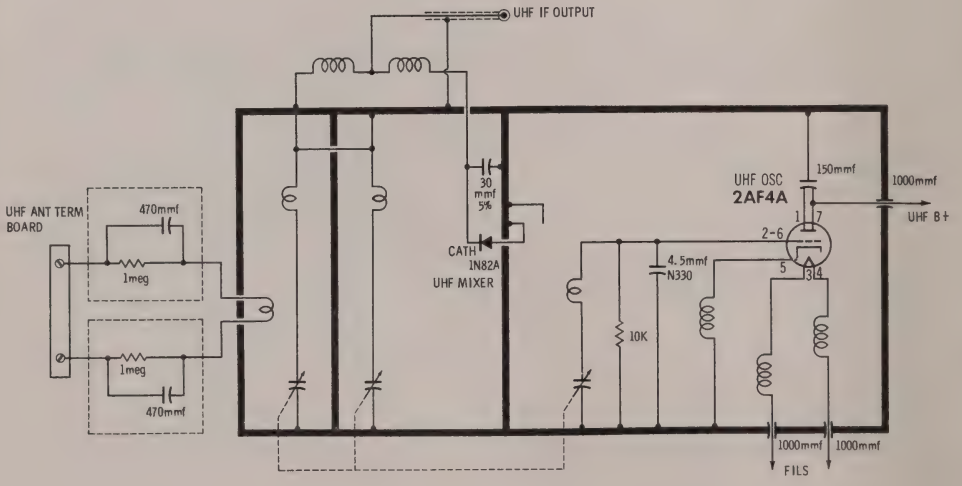
VHF TUNER with UHF Provisions - 323-0112 (54-95182-4)



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UHF TUNER 323-0110 (54-95755-2)

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	1st Video IF Amp.	3BZ6
V2	2nd Video IF Amp.	3BZ6
V3	3rd Video IF Amp.	3BZ6
V4	Video Output - Horiz. AFC	8ET7
V5	AGC Keying - Sound IF Amp.	5BR8
V6	Ratio Det. - AF Amp.	6BN8
V7	Audio Output	5AQ5
V8	Sync Sep. - Noise Limiter	3CS6
V9	Vert. Mult. - Vert. Output	10EG7
V10	Horiz. Mult.	6CG7
V11	Horiz. Output	12DQ6A
V12	Damper	12AX4GTA
V13	HV Rectifier	1G3GT/1B3GT

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	SYLVANIA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V14	23CP4 17DSP4 19XP4 21CQP4	21CQP4 ①	23CP4 ① 17DSP4 ① 19XP4 ① 21CQP4 ①	21CQP4 ①	23CP4 ② 17DSP4 ② 19XP4 ② 21CQP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	150	200	161-1025	PR1-100	XA0315	TC692	TD-200-200	TVAS-1447 *	
C2A	150	350	161-4024	PR4-325				TVAS-3580 *	①
B	100	350							
C	20	350							
D	100	25							
C3	2	50	161-1067	PRS1300	BBR2-50	TC302	TD-2-50	TVA-1301	
C4A	■40	350	161-2026	PWH2-85-10				PCLS-2605.2 *	
B	▲25	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Model Series 23C30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 23T15, 16, 17, and 19T01 use 4 section electrolytic (Part #161-4028).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.22 100V		P288N-22		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C6	39 NPO		NPO-DI 39	TCZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C7	2.7 NPO ±.25mmf							10TCC-V27
C8	2.7 NPO ±.25mmf							10TCC-V27
C9	6.8 NPO ±.25mmf		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C10	4.7 NPO ±.25mmf		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C11	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	.22 100V		P288N-22		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C13	.15 200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C14	510 10%			DD-511	5R5T1	CCD-501	GP350	10TS-T50
C15	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C17	330 10%			D6-331	L10T33	CCD-331	GP333	10TS-T33
C18	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	68 N220 5%					*		10TCR-Q68
C20	800 10%			DD-801	5R5T8	CCD-801	GP382	10TS-T80
C21	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C22	10000	(1000) †	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	270 N1500 10%					*		
C24	5.6 NPO 5%							10TCC-V56
C25	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C26	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C27	.015 200V 10%		V84C2S15-10%		PM4S15	4DP-1-153		4TM-S15
C28	.22 400V		P215IN-22		BC2P22J	4DP-5-224	ACE-6022	4SE-P22
C29	18 10%		DI-18	DD-180	L10Q18	CCD-180	GP418	10TS-Q18
C30	18 N150 10%					*		10TCP-Q18
C31	1000	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	.22 400V		P488N-22		BC2P22J	4DP-5-224	ACE-6022	4SE-P22
C33	1000	Note 2	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C34	.001 1600V 10%				DPMS16D1	16DP-2-102	GEM-1621	
C35	.022 400V		P215IN-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C36	100 10%		1469-001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C37	4700	Note 3	BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C38	4700	Note 3	BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C39	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C40	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C42	2200 10%		DI-2200		PM6D2	CCD-222	GP222	5HK-D22
C43	.0082 600V 10%		P684CM-0082		DPMS6D82	6DP-2-822	GEM16282	6PS-D82
C44	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C45	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C46	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C47	.001 600V 10%		V84C6D1-10%	DD-102	PM6D1	6DP-1-102	GEM-1621	6TM-D10
C48	.0022 600V 10%		V84C6D22-10%		PM6D22	6DP-1-222	GEM-6222	6TM-D22
C49	.33 400V		P488N-33		DPMSP33	4DP-5-334	GEM-4033	4TM-P33
C50	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C51	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C52	.0056 1600V 10%	Pt. #169-0068 Note 4					GEM-16256	
C53	.0056 1600V 10%	Pt. #169-0068					GEM-16256	
C54	1000	Note 5	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C55	.0047 400V 10%		V84C6D47-10%		PM6D47	6DP-1-472	GEM-16247	6TM-D47

SET 509 FOLDER 2

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

FOLDER 2

TV PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C56	47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-47	MS-447
C57	330 10%		1469-00033		5R5T33	CM-19B-331K	MCB241	MS-333
C58	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C59	.022 600V 10%		V84C6S22-10%		PM6S22	6DP-2-223	GEM-1612	6TM-S22
C60	82 3000V 10%	Pt. #169-0061					3DY-482	
C61	47 5000V 10%	Pt. #169-0097 Note 6					6DY-447	50TCY-Q50
C62	1000	Note 2	BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C63	1000	Note 2	BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C64	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C65	.22 400V		P488N-22		CUB4P22	4DP-S-224	GEM-4022	4TM-P22
C66	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C67	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C68	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C69	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C70	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C71	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C72	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C73	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C74	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C75	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C76	1000		BPD-001	DD-102	BYAI0D1	CCD-102	B-210	5HK-D10
C77	4700		BPD-0047	DD-472	BYAI0D47M	CCD-472	B-247	5HK-D47
C78	4700		BPD-0047	DD-472	BYAI0D47M	CCD-472	B-247	5HK-D47

Note 1. May not be used in some versions.
Note 2. Not used in Chassis 548 Series.
Note 3. Chassis 550 Series use 10000mmf in this application.
Note 4. Not used in Chassis 548 Series, 549-1, -2, -3, -4, -5, -6, -9, and Chassis 550-1, -2, -3, -9.
Note 5. Not used in some versions of Chassis 549 Series and all versions of Chassis 548 Series.
Note 6. Chassis 548 Series uses 75mmf 5000V 10% in this application, Chassis 550 Series uses 20mmf 5000V 10%.
† Alternate Value
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES	
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.		
R1A	250K	½	153-0192	B-51	A47-250K-Z	Q13-130	U44	Volume	Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.		
R2A	25K	½	153-0193					Contrast	Note 2
B	17K Tap 6000Ω Stop								
R3A	1meg	½	153-0178	B-69	A47-1meg-S	Q11-137	U54	Brightness	Note 3
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.		
R4A	1meg	½	153-0199	TT-69	B47-1meg-S	B11-137	TA16L	Vert. Hold	Note 4
	950K Stop			*	*	*	*		
B	Shaft			Not Req.	Not Req.	TM4	Not Req.		
R5	190K	½	153-0179					AGC	
R6	5meg	½	153-0180	TT-87	B47-5meg-S	HLC5	PTA56L	Focus	Note 5
R7A	50K	½		TT-31	B47-50K-S	B11-123	PTA54L	Width	Note 6
B	Shaft			Not Req.	Not Req.	TM4	Not Req.		
R8	5meg	½	153-0200	TT-87	B47-5meg-S	HLC5	PTA56L	Height	Note 7
R9	2meg	½	153-0177	TT-75	B47-2meg-S	HLC1	PTA26L	Vert. Linearity	Note 8
	1.9meg Stop			**	**	**	**		

Note 1. Chassis 549-3 uses 250K with 37.5K Tap (Part #153-0202).
Chassis 548-7 uses 250K (Part #152-0061). Chassis 548-1, -2, -3, -4 use 250K (Part #153-0129).
Chassis 550-2, -3, -7, -9 use 250K (Part #153-0240) (Models 23C35B, F, M, W, 23C39F).
Chassis 550-1, -2, -3, -8, -9 use 250K (Part #153-0239), Model 23C375).
Note 2. 548 Series Chassis use 25K (Part #153-0174). 550 Series Chassis use 25K (Part #153-0167).
Note 3. Chassis 548-7 uses 1meg (Part #153-0205). Chassis 548-1, -2, -3, -4 use 1meg (Part #153-0134).
550 Series Chassis use 1meg (Part #153-0237).
Note 4. 548 Series Chassis use 1meg (Part #153-0165).
Note 5. Some versions may use 5meg (Part #153-0200). Same replacements as above.
Note 6. Some versions may use 50K (Part #153-0236). Same replacements as above.
Note 7. 548 Series Chassis use 5meg (Part #153-0164).
Note 8. 548 Series Chassis use 2meg (Part #153-0130).
* Use 47K Resistor in series with right hand terminal viewed shaft end terminals down.
** Use 100K Resistor in series with right hand terminal viewed shaft end terminals down.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R10	5.6meg	
R11	6.8meg	
R12	470K	
R13	4700Ω	
R14	220K	
R15	100K	
R16	220K	
R17	100Ω	
R18	240Ω	
R19	47K	
R20	18K	
R21	47K	
R22	39Ω	
R23	18K	
R24	470Ω	
R25	180Ω	
R26	2200Ω	
R27	100Ω	
R28	6800Ω	
R29	3300Ω	
R30	7000Ω 7W	Pt. #189-0088 IRC #PW10-7KΩ
R31	27Ω	

ITEM No.	RATING	REMARKS
R32	18K	
R33	18K	
R34	15K	
R35	1.2meg	
R36	180K	
R37	22K	
R38	22K	
R39	22K	
R40	470K	Note 1
R41	10K	
R42	56K	
R43	220Ω	
R44	27K	
R45	680Ω 2W	Note 1
R46	270Ω 1W	(330Ω) †
R47	18K	(56K) *
R48	150K	
R49	56K	
R50	1meg	
R51	100K	
R52	47K	(33K) † ▲
R53	68K	
R54	10K 2W	

ITEM No.	RATING	REMARKS
R55	10K 1W	
R56	6.8meg	
R57	2.2meg	
R58	1.5meg	(820K) †
R59	330K	(680K) †
R60	680K	(470K) †
R61	1meg	
R62	1000Ω	Note 2
R63	12K	
R64	33K	
R65	470Ω 2W	
R66	2200Ω	
R67	8200Ω	(4700Ω) ▲
R68	10K 1W	
R69	1000Ω	
R70	68K	(100K) †
R71	220Ω	
R72	270K	(1meg) ▲
R73	18K 2W	(15K)† (8200Ω)▲
R74	18K 2W	(12K) ▲
R75	4700Ω	
R76	4700Ω	
R77	470K	Note 1

TV PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT) (cont)

ITEM No.	RATING	REMARKS
R78	500K	Pt. #189-0081
R79	2700Ω 10W	Pt. #189-0091 IRC #PW10-2700Ω

ITEM No.	RATING	REMARKS
R80	4.7Ω 15W	Pt. #187-0034 Note 3
R81	41Ω 20W	Pt. #187-0067

ITEM No.	RATING	REMARKS
R82	100K	
R83	100K	
R84	470K	

* Alternate Value
† Value used in Chassis 548-1 thru 7.
▲ Value used in Chassis 550-1, -2, -3, -7, -9.

Note 1. Not used in Chassis 548-1 thru 7.
Note 2. May not be used in some versions.
Note 3. Chassis 548-1 thru 7 use Pt. #187-0007 in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	47.25MC Trap	119-0026	TV-153 *	6225 *	RTC-8556 *	* Fabricate Mounting
L2	41.25MC Trap	120-0027	TV-131 *	6226 *	RTC-8626 *	
L3A	1st Video IF	119-0027	TV-134 *	6222 *	RTC-8553 *	
B	47.25MC Trap					
L4	2nd Video IF	119-0028	TV-130 *	6219 *	RTC-8551 *	
L5	3rd Video IF	119-0028	TV-130 *	6219 *	RTC-8551 *	
L6	RF Choke	118-0032	BC-561	4602	RTC-8515	1.2uh
L7	4th Video IF	119-0026	TV-131 *	6226 *	RTC-8626 *	
L8	RF Choke	118-0020	BC-566	4612	RTC-8522	10uh
L9	RF Choke	118-0020	BC-566	4612	RTC-8522	10uh
L10	Peaking Coil	131-2036	TV-193	6172	RTC-8590	66uh
L11	Peaking Coil	131-2033	TV-200	6132	RTC-8577	330uh
L12A	4.5MC Trap	120-0023				
B	Sound Takeoff					
L13	Peaking Coil	131-2037	TV-201	6134	RTC-8578	365uh
L14	Ratio Detector	127-0002				
L15	RF Choke	118-0010	BC-566	4612	RTC-8522	12uh
L16	Fil. Choke	118-0032	BC-561	4602	RTC-8515	1.2uh
L17	Fil. Choke	118-0032	BC-561	4602	RTC-8515	1.2uh
L18	Fil. Choke	118-0032	BC-561	4602	RTC-8515	1.2uh

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L19	Horiz. Stabilizer	132-0019 *	TV-163	6210	RC110	RTC-8622	HS-4	WLC-25

* Chassis 552-1, -2, -9 use Pt. #132-0022 in this application.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L20	.280A	35Ω	.9 Hy.	145-0020		C-2343	28C44	C-34X	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	241-0047	A-2815 ①②		VO-102 ③	28S15 ③	A-134X	
T2	Yoke Horiz. (32MH) (110°) Vert. (30MH)	100-0035 * †	MDF-110 ④⑤		DY-42A	Y-46 ④⑤	Y-66⑥ & NW2	
	Yoke	100-0039 ▲						
	Yoke	100-0040 †						
	Yoke Clamp	487-0076 * ‡						
	Yoke Clamp	487-0075 † ▲						
T3	Horiz. Output	241-0049 ‡						
	Horiz. Output	241-0050 ▲ †						
	Horiz. Output	241-0051 *						

① Use 6:1 Turns Ratio.
② Connect as autoformer.
③ Drill new mounting hole(s).
④ Requires new rear cover.
⑤ Connect yoke terminal #5 to horizontal output terminal #5; yoke terminal #6 & #2 to terminal #1 horizontal output; yoke #1 to horizontal output terminal #C.
⑥ Connect yoke terminal #2 to horizontal output #5; yoke #1 & #3 to horizontal output #1; yoke terminal #7 to horizontal output #C. Remove orange lead from terminal #5.
* Chassis 550-1, -2, -3, -7, -8, -9.
▲ Chassis 548-1 thru -7.
† Chassis 552-1, -2, -9 (Model 19T01 Series).
‡ Chassis 549-1 thru -9.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	5100Ω	6-8Ω	143-0072 ② 143-0061 ③ 143-0071 ④ 143-0095 ⑤	A-2900 ① A-2930 ①	A-3850 ① A-3877 ①	24S05 ① 25S51 ①	S-63X ① S-3X ①	① Drill new mounting hole.

② Used in Models 21C07, 9, 23C09, 10, 11, 27, 28, 29, 23C32, & Chassis 548-3, -4.
③ Used in Models 23M10l, 23T09, 10, 11, 12, 13, 14, 23C33, 31, 17, 16, 15, 30.
④ Used in Models 23C08, 18, 20, 26, 23C37, 38, 39, 34, 36, 35.
⑤ Used in Chassis 548-1, -2, -7.

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

FOLDER 2

TV PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (HALOLIGHT)

ITEM No.	RATING PRI	RATING SEC 1	RATING SEC 2	REPLACEMENT DATA SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	117V 60Cy	1260V CT @ .050A	.005A	141-0091 ①					

① Used in Models 23C11 Series, 20, 27, 28, 31, 34, 35, 36, 37, 38, 39, 23T14, 17. Pt. #141-0065 used in Models 21C07, 21C09, 23C09

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP	REPLACEMENT DATA SYLVANIA PART No.	QUAM PART No.	NOTES
SP1	4" x 8"	PM	3-4Ω	539-4803 ①	4BA8	① Used in Models 23C20, 23C29
SP2	4"	PM	3-4Ω	539-0436 ②	4A05	② Used in Models 21C07, 21C09, 23C08, 23C09, 23C20, 23C21, 23C28, 23C27, 23C28, 23C29, 23C33, 23C37.
	6"	PM		539-0618 ③		③ Used in Models 21C07, 21C09, 23C08, 23C09, 23C20, 23C21, 23C28, 23C27, 23C28, 23C29
	8"	PM		539-0619 ④		④ Used in Model 23C20
	5"	PM		539-0434 ⑤	4A1	⑤ Used in Models 23C28, 23C20, 23C29, 23C29.
	4"	PM		539-0436 ⑥		⑥ May be used in some versions of 23C20, 28, 29.
	4"	PM		539-0435 ⑦		⑦ Used in Models 23M20, 23T09, 23T10, 23T11, 23T12, 23T13, 23T14, 23T15, 23T16, 23T17.
	3½"	PM		539-0552 ⑧		⑧ Used in Models 17D23R, T, 17D23R, W, 17D23T, W
2" x 5"		PM		539-3500 ⑨		⑨ Used in Models 17D24W, 17D25T, W, 17D26G, S.
5" x 9"		PM		539-8900 ⑩		⑩ Used in Models 17D25R, T.
	6"	PM		539-0614 ⑪		⑪ Used in Model 19T01.
						⑫ Used in Models 23C37, 23C38, 23C39.
						⑬ Used in Models 23C21, 23C23.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Antenna Filter	470mmf, 3-lneg	190-0035	Centralab RC-47, Sprague ACI-1
K2	Antenna Filter	470mmf, 3-lneg	190-0035	Centralab RC-47, Sprague ACI-1
K3	Vert. Retrace	330mmf, 6600mmf, 33K, 33K	190-0058	
K4	Audio Coupling	470mmf, 6800mmf, 10000mmf, 470K, 470K, 10meg	190-0058	
K5	Sync Sep. Grid	1000mmf, 10000mmf, 330K, 1meg	190-0043	
K6	AFC Comp.	82mmf, 100mmf, 1000mmf, 1000mmf, 4700mmf, 4700mmf, 27000mmf, 47K, 820K, 1meg, 1meg	190-0049	
	AFC Comp.	1000mmf, 1500mmf, 4700mmf, 95mmf, 95mmf, 27000, 330K, 270K, 180K, 47K	190-0062 *	* Ch. 650-1, -2, -3, -7, -8, -9
K7	Horiz. Mult. Plate	680mmf, 1000mmf, 4700mmf, 27000, 120K	190-0050	
	Horiz. Mult. Plate	680mmf, 1000mmf, 4700mmf, 27000, 90K	190-0061 *	* Ch. 650-1, -2, -3, -7, -8, -9

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	SYLVANIA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.280A	517-0031 *		1N1763 *	402#	SR500 *	* Silicon Type
M2	.280A	517-0028 *		1N1763 *	402#	SR500 *	

NOTE: Germanium (Pt. #517-0029) may be used for M1 and M2 in some versions.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA SYLVANIA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3	1N295 *		1N295 *	1N296 *	* Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M4	Tuner	323-0119	(54-89730-5), VHF
	Tuner	323-0120	(54-89730-6), VHF
	Tuner	323-0111	(54-89182-3), VHF
	Tuner	323-0113	(54-89183-4), VHF
	Tuner	323-0112	(54-89182-5), VHF
	Tuner	323-0115	(54-97294-1), VHF
	Tuner	323-0117	(54-89757-5), VHF
	Tuner	323-0118	(54-89757-4), VHF
	Tuner	323-0110	(54-89758-3), UHF
	Tuner	323-0099	(54-84679-1), UHF
	Tuner	323-0123	(54-89758-2)
	Tuner	323-0120	(54-97582-1)
	Tuner	323-0123	(54-97294-2)
	Tuner		(54-97294-3)
	Tuner	323-0121	(54-97294-4)
M5	Circuit Breaker	1R1-0039	
M6	Switch	571-0018	Off-On, Chassis 549-1, thru -9, 548-1, -2, -3, -4
	Switch	571-0039	Off-On, Chassis 548-7

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO	DESCRIPTION
Button	740-2280	Os-Oil, Models 21C07, 21C09, 23C09, 23C08, 23C10, 23C11, 23C20B, 23C20M, 23C20W, 23C26, 23C27, 23C28, 23C29, 23M00, 23T09B, 23T09M, 23T10, 23T11, 23T12, 23T13B, 23T13M, 23T14B, 23T14M, 23T14W, 19T01B, 19T01F, 19T01W, Magic Touch on Model 21C09
Bar	740-2289	Magic Touch, Models 23C18, 23C20B, 23C20M, 23C20W, 23T14B, 23T14M, 23T14W,
Handle	518-0160	Carrying, Models 17D23R, 17D23T, 17D24W, 17D25R, 17D25T, 17D27R, 17D27W,
Handle	518-0211	17D28T, 17D28W Carrying, Models 17D29G, 17D29S

CONTROL KNOBS

MODELS	CHANNEL SEL.	FINE TUNING	ON-OFF	VOLUME	BRIGHTNESS	CONTRAST	HORIZ HOLD	VERT HOLD	AGC
17D23R	742-0095 (VHF) 742-0090 (VHF/UHF)	741-0070 (VHF) 741-0068 (VHF/UHF) 740-0227 (UHF)	740-0253	740-0252	740-0252	740-0246	740-0249	740-0247	740-0248
17D23T	742-0099 (VHF) 741-0062 (VHF/UHF)	"	740-0253	740-0254	740-0254	740-0255	740-0148	740-0256	740-0415
17D24W	741-0090 (VHF) 741-0098 (VHF/UHF)	"	740-0253	740-0256	740-0256	740-0257	740-0367	740-0261	740-0264
17D25R	741-0053 (VHF) 741-0054 (VHF/UHF)	"	740-0290	740-0253	740-0253	740-0228	740-0295	740-0293	740-0294
17D25T	741-0051 (VHF) 741-0052 (VHF/UHF)	"	740-0287	740-0286	740-0286	740-0286	740-0292	740-0289	740-0291
17D27R	741-0103 (VHF) 741-0104 (VHF/UHF)	"	740-0413	740-0413	740-0413	740-0414	740-0249	740-0247	740-0248
17D27W	741-0105 (VHF) 741-0104 (VHF/UHF)	"	740-0413	740-0413	740-0413	740-0414	740-0294	740-0393	740-0379
17D28T	741-0094 (VHF) 741-0095 (VHF/UHF)	741-0070 (VHF) 740-0227 (UHF)	740-0365	740-0375	740-0375	740-0376	740-0381	740-0377	740-0380
17D28W	740-0096 (VHF) 741-0097 (VHF/UHF)	"	740-0365	740-0375	740-0375	740-0375	740-0382	740-0378	740-0395
17D29G	740-0090 (VHF)	740-0275 (VHF)		740-0273	740-0273	740-0273	740-0265	740-0271	740-0270
17D29S	743-0090 (VHF)	740-0275 (VHF)		740-0274	740-0274	740-0274	740-0244	740-0272	740-0113
19T01B, F, W	740-0284 (VHF)	740-0282		740-0278	740-0278	740-0278		740-0284	
21C07, 21C09, 23C08, 23C09, 23C20	742-0091 (UHF)								
23C11	743-0096 (VHF)	"		"	"	"	"	"	
23C18	740-0279 (VHF)	"		"	"	"	"	"	
23C20B, M, W	740-0301 (VHF)	"		"	"	"	"	"	
23C28, 23C27, 23C29	740-0284 (VHF) 740-0291 (UHF)	"		"	"	"	"	"	
23C28	743-0096 (VHF) 742-0091 (UHF)	"		"	"	"	"	"	
23M00	740-0213 (VHF)	"		"	"	"	"	"	
23T09B, M	740-0284 (VHF)	"		"	"	"	"	"	
23T12	740-0291 (UHF)								
23T10, 23T11	740-0279 (VHF)	"		"	"	"	"	"	
23T13B, M	740-0301 (UHF)								
23T14B, M, W									
23T15B	740-0286 (VHF)	740-0297 (VHF)		740-0287	740-0287	740-0288		740-0284	
23T16B, M, W	740-0298 (VHF)								
23T17B, M, W	740-0298 (VHF)	"		"	"	"	"	"	
23C20B, M, W	740-0286 (VHF)	"		"	"	"	"	"	
23C20B, F, M, W	740-0289 (VHF)	740-0297 (VHF)		"	"	"	"	"	
23C20B, F, M, W	740-0286 (VHF)	"		"	"	"	"	"	
23C23B, M, W	740-0289 (VHF)	740-0297 (VHF)		"	"	"	"	"	
23C26D, M, W									
23C34B, M, W	740-0286 (VHF)	"		"	"	"	"	"	
23C35B, F M, W	740-0298 (VHF)								
23C37F									
23C38F, W	740-0289 (VHF)	740-0297 (VHF)		"	"	"	"	"	
23C39F									

CABINETS & CABINET PARTS (cont)

MODELS	MAHK	TONE KNOBS	DIAL Chan. Sel. (UHF)	DIAL Chan. Sel. (VHF)	DIAL Chan. Sel. (UHF/VHF)	CLOCK KNOBS	CLOCK Time Set KNOBS
17D18R, T						740-0311	740-0312
19T01B, F, W	718-0074		722-0081	722-0074	722-0073		
21C07	718-0063	740-0278	"	"	"		
21C09	718-0067	"	"	"	"		
23C08	718-0059	"	"	"	"		
23C09	718-0069	"	"	"	"		
	718-0368 (Halo)						
23C10	718-0064	"	"	"	"		
23C11	718-0068	"	"	"	"		
23C18	718-0069	"	722-0081	"	722-0073		
23C20B, M, W	718-0068	"	"	"	"		
23C26	718-0069	"	"	"	"		
23C27	718-0068	"	"	"	"		
23C28	"	"	"	"	"		
23C29	718-0069	"	722-0081	"	722-0073		
23M00	718-0033	"	"	"	"		
23T09B, M	718-0069	"	722-0081	"	722-0073		
23T10, 11	718-0070	"	"	"	"		
23T12, 13B, M	718-0069	"	"	"	"		
23T14B, M, W	718-0068	"	"	"	"		
23T15B	718-0072	740-0287	722-0076	722-0082	722-0083		
23T16B, M, W	718-0073	"	"	"	"		
23T17B, M, W	718-0071	"	"	"	"		
23C20B, M, W	718-0072	"	"	"	"		
23C23B, F, M	718-0071	"	722-0084	722-0085	722-0086		
23C23B, F, M, W	718-0073	"	722-0076	"	722-0083		
23C33B, M, W	"	"	"	722-0087	"		
23C34B, M, W	718-0075	"	722-0076	722-0083	722-0083		
23C35B, F, M, W	"	"	722-0084	722-0085	722-0086		
23C36B, M, W	"	"	"	722-0087	"		
23C37F	"	"	722-0076	722-0083	722-0083		
23C38F, W	"	"	"	722-0087	"		
23C39F	"	"	"	"	"		

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8883 (Single Conductor) 8736 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8284 (Stranded) Available in Ten Colors
Power Cord (Asterlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8576
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8448 (Round) - 5 Conductor 8455 (Round) - 8 Conductor

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

REMOTE CONTROL RECEIVER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC USE	GENERAL ELECTRIC TYPE	RAYTHEON ITEM No.	RAYTHEON USE	RAYTHEON TYPE	SYLVANIA ITEM No.	SYLVANIA USE	SYLVANIA TYPE
V15	R F Amp.	6AW8A						

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C79A B	±50 ±25	200 25	181-3025	AF83-75-M0	AC810 BSR25-25	WP237, 38	TVL-1573 TD-25-25	TVL-1573 TVA-1205	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	FLAMINCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C80	.012 100V				DPMS82			2WF-S2
C81	.01 300V		P38RN-01	DE-103	CUB3R	4DP-1-103	GEM-4U	2TM-S0
C82	1000		BPD-001	DD-102	BYA01K	CCD-102	B-E05	5BK-D10
C83	.22 100V	(.47) †	P38RN-22		CUB3P32	1DP-1-224	GEM-2022	2TM-P22
C84	.22 100V	Note 1	P38RN-22		CUB3P32	1DP-1-224	GEM-2022	2TM-P22
C85	.047 100V	(.01) †	P38RN-047	DD-503	CUB3M47	1DP-1-473	GEM-4147	2TM-S47
C86	.022 100V		P38RN-022	DD-223	CUB3E22	1DP-1-223	GEM-4122	4TM-S22
C87	.047 300V	(.01) †	P38RN-047	DD-503	CUB4M47	4DP-1-473	GEM-4147	2TM-S47
C88	.47 200V		P38RN-47		CUB4P47	2DP-1-474	GEM-2047	2TM-P47

† Alternate Value.

Note 1. May not be used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R85	300Ω	2(WW)	153-0215			110-300		Threshold (Range)

REMOTE CONTROL RECEIVER PARTS LIST (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R86	330K	
R87	220Ω	
R88	82Ω	
R89	47K	

ITEM No.	RATING	REMARKS
R90	6800Ω	
R91	220K	
R92	82K	
R93	10K	

ITEM No.	RATING	REMARKS
R94	220K	
R95	8200Ω 2W	
R96	22Ω 1W	
R97	10Ω	Note 1

Note 1. May not be used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L21	Antenna Coil	581-0025				
L22	Tuning Coil	121-0009				

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	REPLACEMENT DATA						NOTES
		SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.		
T6	117V @ .1A Tap @ 6.3V @ .9A	141-0084						

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA					NOTES
		SYLVANIA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M7 M8	.050A	517-0025 * 624-0008 ♦	6GD1 ‡	1N1763 ‡	65A *	SR200 ‡	* Selenium ♦ Dual Selenium Diode ‡ Silicon Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SYLVANIA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M9	3AG	1/4A 250V P/T	191-0013		318. 250 (1/4A 3AG 250V P/T)		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M10	Switch		Off-On-Remote
M11	Switch		Homing
M12	Relay	574-0001	

REMOTE CONTROL TRANSMITTER PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N226 1604 *	Oscillator Oscillator				PNP PNP * Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C89	20	12	161-1055	XPP-12020	NLW20-15	TT15X20	ML20-15	TE-1130	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C90	.1 200V		V84C2P1		WMF2P1E	2DP-3-104	GEM-201	2TM-P10
C91	.15 200V 5%		V84C2P15-5%					5BF-P15

REMOTE CONTROL TRANSMITTER PARTS LIST (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R98	4700Ω	

ITEM No.	RATING	REMARKS

ITEM No.	RATING	REMARKS

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L23	Antenna Coil	111-0049				

BATTERIES

ITEM No.	VOLTAGE	SYLVANIA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M13	9V					E146		TR-146R	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Button	740-0331	Function, Remote Transmitter
Cabinet	822-0102	Plastic, Remote Transmitter

TUNER PARTS LIST AND DESCRIPTIONS

323-0119

TUBES

• GENERAL ELECTRIC •		RAYTHEON •		SYLVANIA •	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	2CY5	V202	Mixer - Osc.	5EA8 (5U8) *

* Alternate

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	15		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C202	1000		EF-001	MFT-1000		CCF-102	CT280A	
C203								
C204	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C205	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C206	1.2 10%							10TCC-V12
C207	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C208								
C209	18		DI-18	TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C210	2.4 NPO		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C211	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C212	85 10%		DI-82	DD-820	L10Q82	CCD-820	GP382	10TS-Q82
C213	1.2 N470					*		
C214	10		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C215	5 N220					*		10TCR-V50
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	1000		EF-001	MFT-1000		CCF-102	CT280A	
C218	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	
C222	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

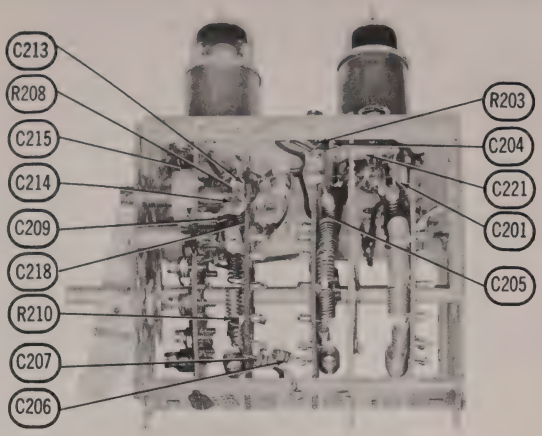
ITEM No.	RATING	REMARKS
R201	6800Ω	
R202	3900Ω	
R203	22K	
R204	12K	

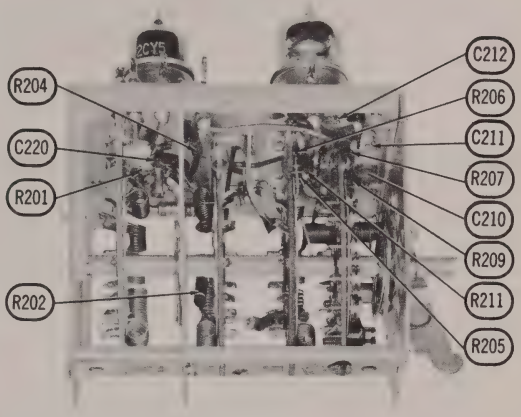
ITEM No.	RATING	REMARKS
R205	150K	
R206	22K	
R207	1000Ω	
R208	10K	

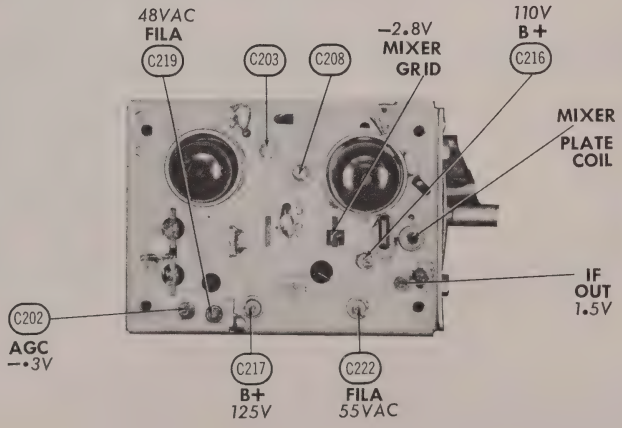
ITEM No.	RATING	REMARKS
R209	4700Ω	
R210	3300Ω	
R211	10K	

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

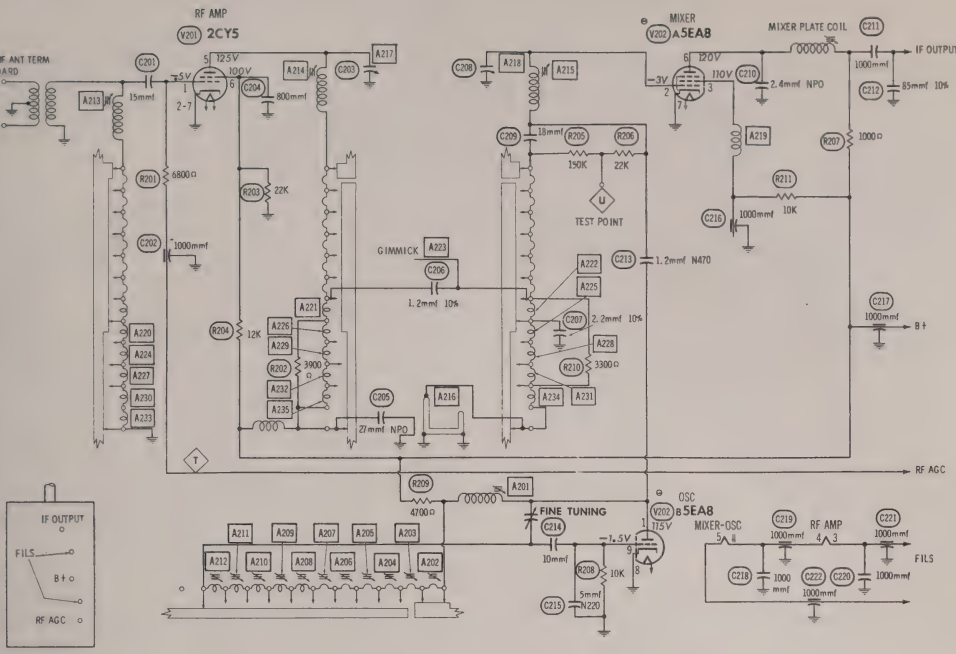
FOLDER 2







VHF TUNER 323-0119 (54-89720-5H)



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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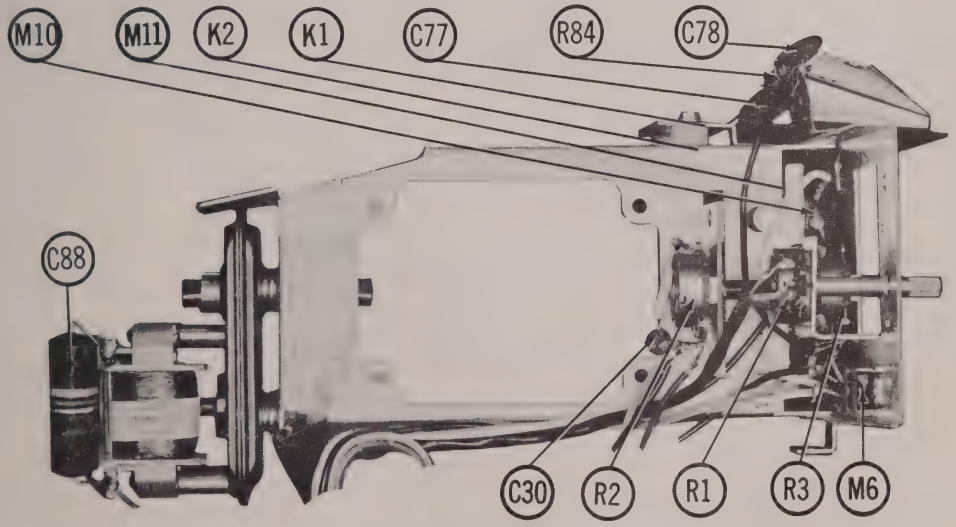
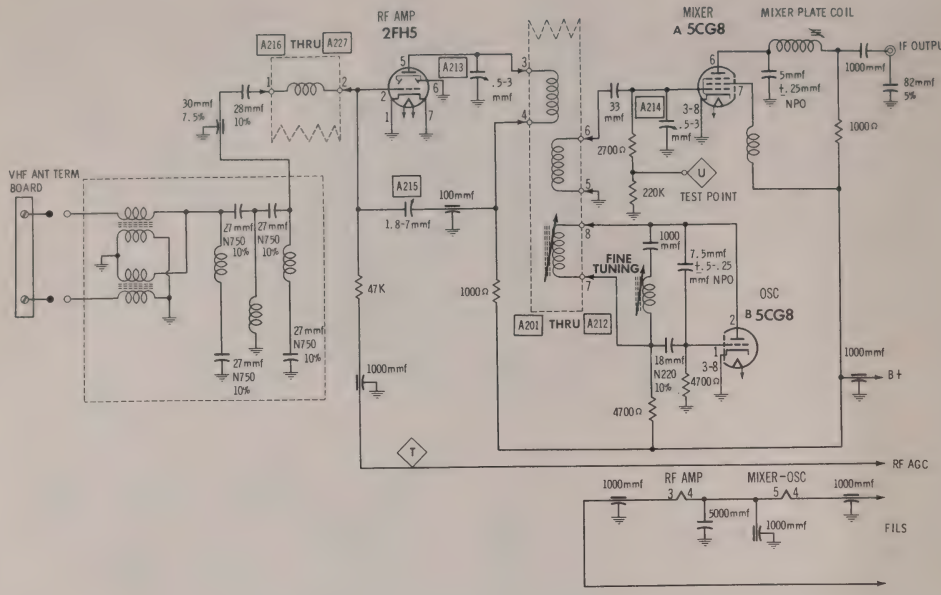
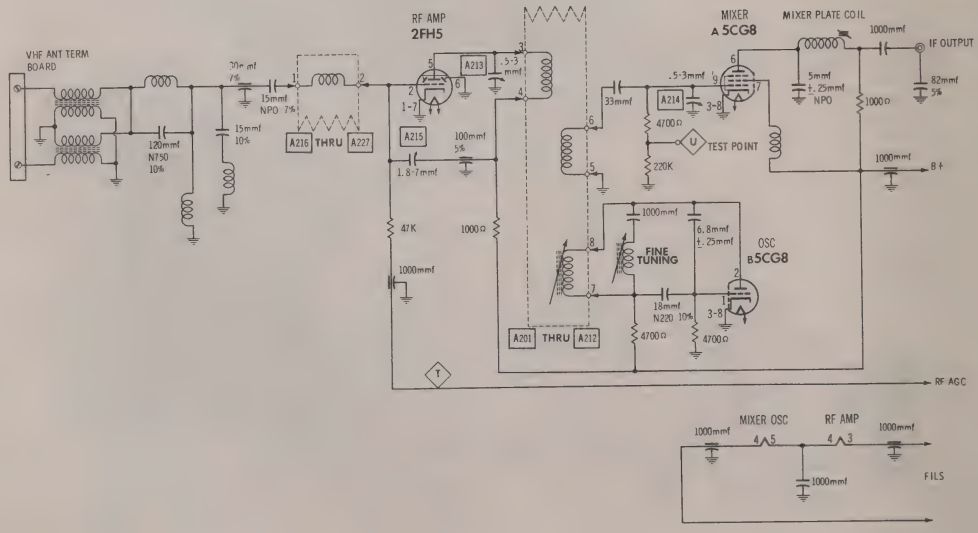
VHF TUNER 323-0119 (54-89720-5H)



VHF TUNER & REMOTE CONTROL RECEIVER MOUNTING BRACKET ASSEM.



VHF TUNER 323-0115 (54-97394-1)



VHF TUNER 323-0113 (54-95182-5) and VHF TUNER 323-0111 (54-95182-3)

TUNER ALIGNMENT INSTRUCTIONS

323-0111, -0112, -0113, -0115

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A213 thru A215 ..... GENERAL CEMENT #9087, 9089
WALSCO #2528

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175.25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63 MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

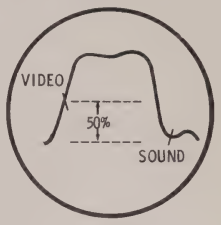


FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A213, A214, A215	Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	"	A216	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

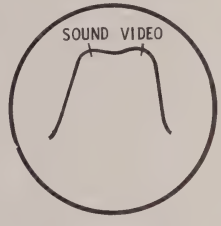


FIG. 202

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

FOLDER 2

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

323-0117, -0118

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF Antenna Terminals with 120Ω in each lead.	213MC	215.75MC	13	Across Video Det. Load with 10K in Vert. Amp. Lead.	A201	Adjust to place marker in trap notch as in Fig. 201.
2.	"	207MC	209.75MC	12	"	A202	"
3.	"	195MC	197.75MC	10	"	A203	"
4.	"	183MC	185.75MC	8	"	A204	"
5.	"	85MC	87.75MC	6	"	A205	"
6.	"	69MC	71.75MC	4	"	A206	"
7.	"	57MC	59.75MC	2	"	A207	"

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Across VHF Antenna Terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (U). Low side to chassis.	A208, A209	Adjust for response similar to Fig. 202 with maximum amplitude approximately 1.25MC above Video carrier.
		207MC	205.25MC 209.75MC	12		A210 A211	
		201MC	199.25MC 203.75MC	11		A212 A213	
		195MC	193.25MC 197.75MC	10		A214 A215	
		189MC	187.25MC 191.75MC	9		A216 A217	
		183MC	181.25MC 185.75MC	8		A218 A219	
		177MC	175.25MC 179.75MC	7		A220 A221	
		85MC	83.25MC 87.75MC	6		A222 A223	
		79MC	77.25MC 81.75MC	5		A224 A225	
		69MC	67.25MC 71.75MC	4		A226 A227	
		63MC	61.25MC 65.75MC	3		A228 A229	
		57MC	55.25MC 59.75MC	2		A230 A231	

UHF ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

FIG. 201

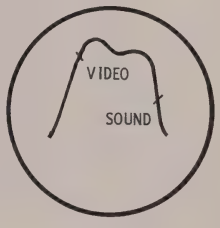


FIG. 202

TUNER ALIGNMENT INSTRUCTIONS

323-0119

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212.... GENERAL CEMENT #5097, 8727
WALSCO #2515
A213 thru A215 ... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A217, A218 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF antenna terminals with 120Ω in each lead.	213MC	215.75MC	13	Across Video Det. load with 10K in Vert. Amp. lead.	A201	Adjust to place marker in trap notch as in Fig. 201.
		207MC	209.75MC	12		A202	
		201MC	203.75MC	11		A203	
		195MC	197.75MC	10		A204	
		189MC	191.75MC	9		A205	
		183MC	185.75MC	8		A206	
		177MC	179.75MC	7		A207	
		85MC	87.75MC	6		A208	
		79MC	81.75MC	5		A209	
		69MC	71.75MC	4		A210	
		63MC	65.75MC	3		A211	
		57MC	59.75MC	2		A212	

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Use 10MC sweep unless otherwise noted.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Across VHF antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A213, A214, A215, A216	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust A213 for maximum gain, A214 and A215 for proper marker positions and A216 for proper bandwidth.
3.	"	177MC	175.25MC 179.75MC	7	"	A217, A218	Adjust for maximum gain and symmetry of response similar to Fig 202 with markers as shown. Repeat steps 2 and 3.
4.	"	"	"	"	"	A219	If dip in response curve exceeds 15%, adjust A219 but not to the extent that gain is lost.
5.	"	85MC	83.25MC 87.75MC	6	"	A220, A221, A222, A223	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. A220 is adjusted for maximum gain, A221 and A222 to position markers and A223 for proper bandwidth.
6.	"	79MC	77.25MC 81.75MC	5	"	A224, A225, A226	Adjust in numerical order for response similar to Fig. 202. First adjustment is for maximum gain and other two for correct marker placement.
7.	"	69MC	67.25MC 71.75MC	4	"	A227, A228, A229	"
8.	"	63MC	61.25MC 65.75MC	3	"	A230, A231, A232	"
9.	"	57MC	55.25MC 59.75MC	2	"	A233, A234, A235	"

FIG. 201

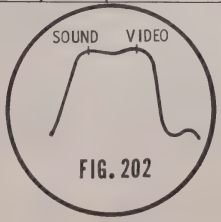
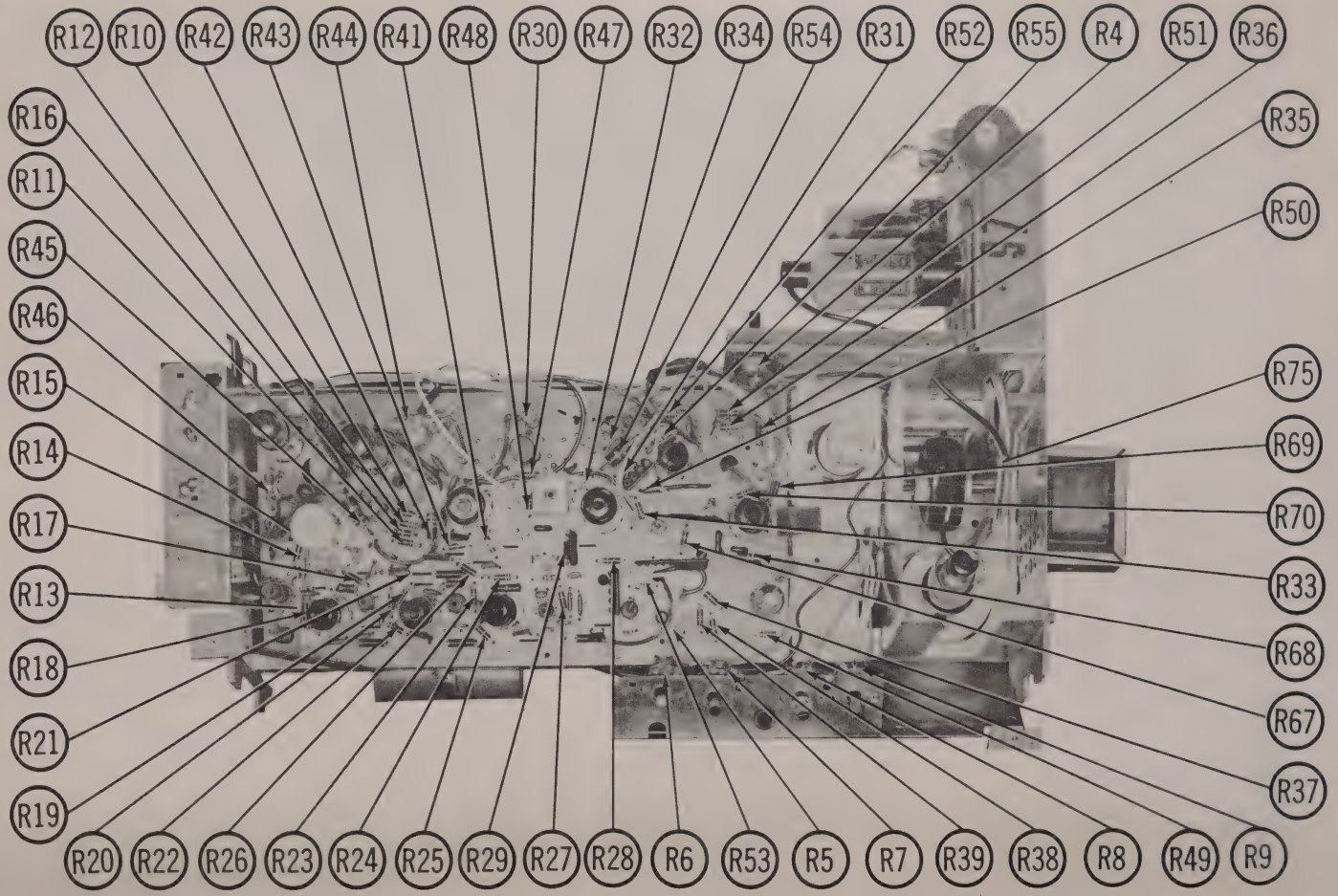


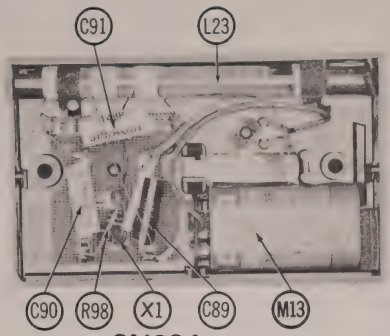
FIG. 202

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9

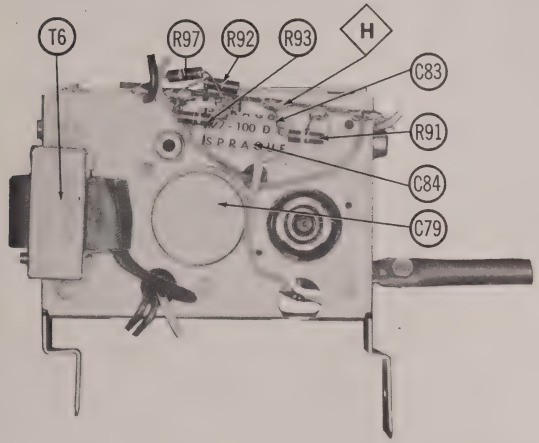
FOLDER 2



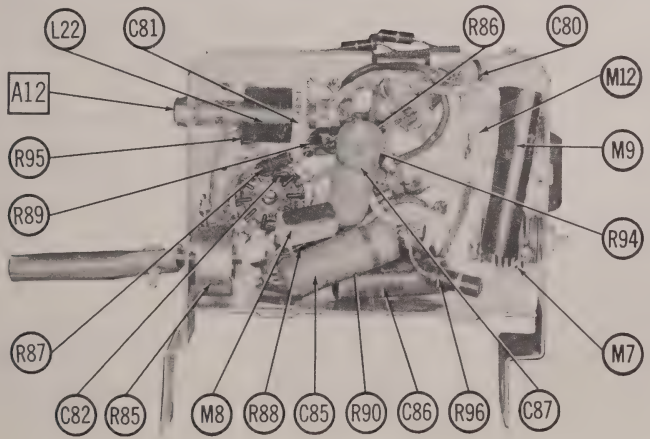
TV CHASSIS TOP VIEW - RESISTOR INDENT



REMOTE CONTROL TRANSMITTER



REMOTE CONTROL RECEIVER - TOP VIEW

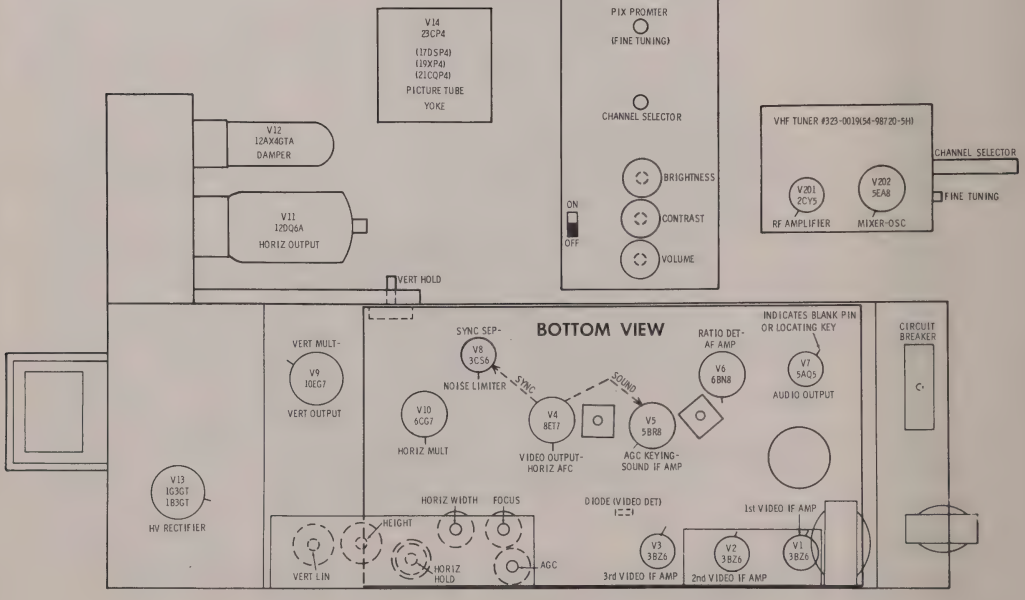


REMOTE CONTROL RECEIVER - BOTTOM VIEW

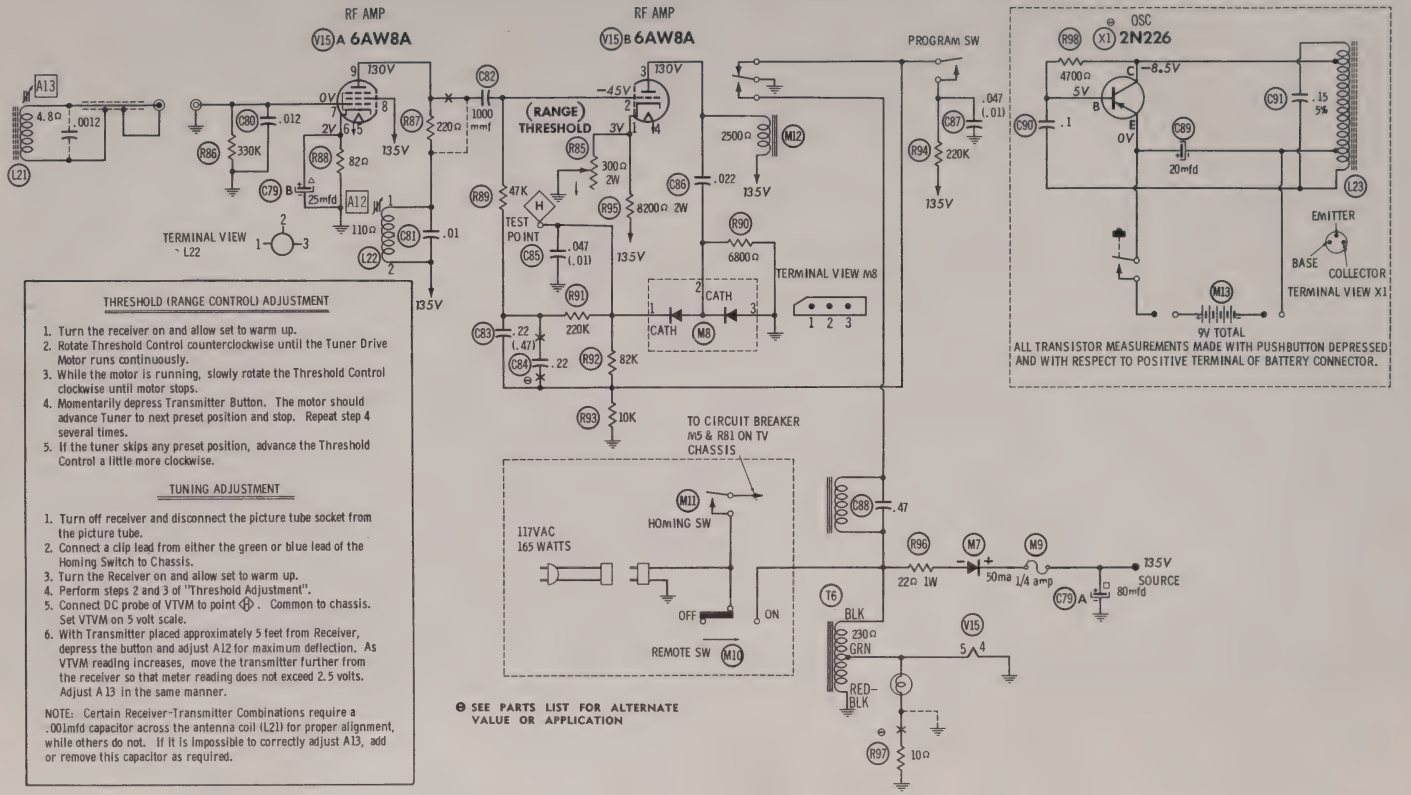
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	325K	240Ω	70Ω	65Ω	▪ 140Ω	▪ 140Ω	0Ω		
V2	3BZ6	30K	INF	65Ω	60Ω	† 35Ω	† 35Ω	▪ 39Ω		
V3	3BZ6	0Ω	180Ω	60Ω	55Ω	† 5400Ω	† 5400Ω	0Ω		
V4	8ET7	1meg	2meg	2700Ω	20Ω	32Ω	27Ω	3300Ω	† 2700Ω	† 2700Ω
V5	5BR8	† 50K	320K	• 70K	20Ω	10Ω	† 56K	† 56K	220Ω	10K
V6	6BN8	INF	27K	INF	0Ω	10Ω	0Ω	† 470K	10meg	0Ω
V7	5AQ5	NC	270Ω	70Ω	80Ω	† 1200Ω	† 715Ω	470K		
V8	3CS6	† 1meg	0Ω	42Ω	45Ω	† 30K	† 8000Ω	1.3meg		
V9	10EG7	• 2meg		470Ω	• 3meg	• †2.5meg	0Ω	95Ω	115Ω	
V10	6CG7	† 10K	3meg	1000Ω	42Ω	32Ω	† 68K	120K	1000Ω	0Ω
V11	12DQ6A	NC	165Ω	NC	• † 11K	270K	TP	140Ω	0Ω	TOP CAP † 11Ω
V12	12AX4GTA	NC	NC	¶	NC	† 35Ω	TP	115Ω	140Ω	
V13	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP † 275Ω
V14	Z3CP4	45Ω	40K	† 35Ω	• †1.8meg	NC	NC	• 400K	55Ω	
V15	6AW8A	• 250Ω	300K	†† 2500Ω	0Ω	.8Ω	82Ω	330K	†† 0Ω	†† 320Ω
V201	2CY5	6.5meg	0Ω	80Ω	85Ω	† 2700Ω	† 15K	0Ω		
V202	5EA8	† 7500Ω	170K	† 13K	85Ω	95Ω	† 3700Ω	0Ω	0Ω	10K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
†† MEASURED FROM OUTPUT OF M7.
NC NO CONNECTION
† MEASURED FROM PIN 3 OF V12.
▪ MEASURED FROM PIN 2 OF V2.
TP TIE POINT



TUBE PLACEMENT CHART


RF AMP
V15A 6AW8A
RF AMP
V15B 6AW8A
OSC
X1 2N226
PROGRAM SW
(RANGE) THRESHOLD
TEST POINT
TERMINAL VIEW L22
TERMINAL VIEW M8
TERMINAL VIEW X1
EMITTER
BASE
COLLECTOR
9V TOTAL
ALL TRANSISTOR MEASUREMENTS MADE WITH PUSHBUTTON DEPRESSED AND WITH RESPECT TO POSITIVE TERMINAL OF BATTERY CONNECTOR.
THRESHOLD (RANGE CONTROL) ADJUSTMENT
1. Turn the receiver on and allow set to warm up.
2. Rotate Threshold Control counterclockwise until the Tuner Drive Motor runs continuously.
3. While the motor is running, slowly rotate the Threshold Control clockwise until motor stops.
4. Momentarily depress Transmitter Button. The motor should advance Tuner to next preset position and stop. Repeat step 4 several times.
5. If the tuner skips any preset position, advance the Threshold Control a little more clockwise.
TUNING ADJUSTMENT
1. Turn off receiver and disconnect the picture tube socket from the picture tube.
2. Connect a clip lead from either the green or blue lead of the Homing Switch to Chassis.
3. Turn the Receiver on and allow set to warm up.
4. Perform steps 2 and 3 of "Threshold Adjustment".
5. Connect DC probe of VTVM to point ⊕. Common to chassis. Set VTVM on 5 volt scale.
6. With Transmitter placed approximately 5 feet from Receiver, depress the button and adjust A12 for maximum deflection. As VTVM reading increases, move the transmitter further from the receiver so that meter reading does not exceed 2.5 volts. Adjust A 13 in the same manner.
NOTE: Certain Receiver-Transmitter Combinations require a .001mfd capacitor across the antenna coil (L21) for proper alignment, while others do not. If it is impossible to correctly adjust A13, add or remove this capacitor as required.
TO CIRCUIT BREAKER M5 & R81 ON TV CHASSIS
HOMING SW
117VAC 165 WATTS
OFF
ON
REMOTE SW
135V SOURCE
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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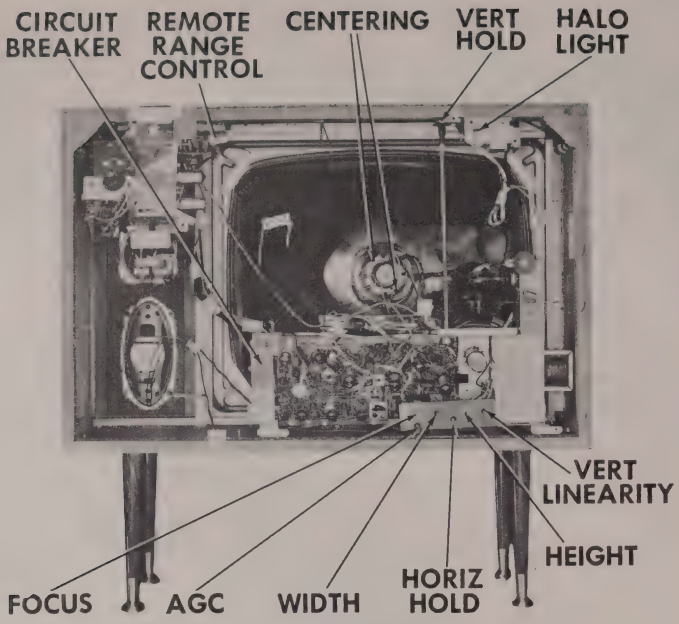
REMOTE CONTROL RECEIVER & TRANSMITTER

SYLVANIA CHASSIS 548-1 thru -7, 549-1 thru -9, 550-1, -2, -3, -7, -9, 552-1, -2, -9



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

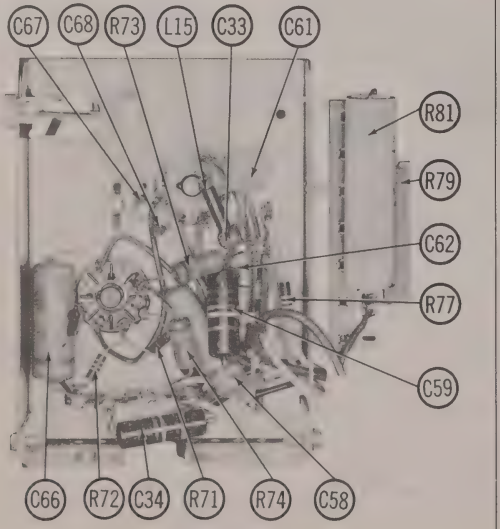
Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast Controls for a normal picture.

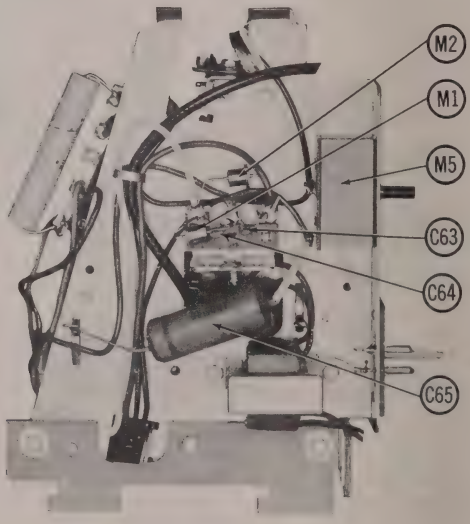
Turn the Horizontal Hold (Horiz. Freq.) clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

Adjust Width Control for a picture slightly wider than necessary to fill the picture mask horizontally.



LV SUPPLY SECTION

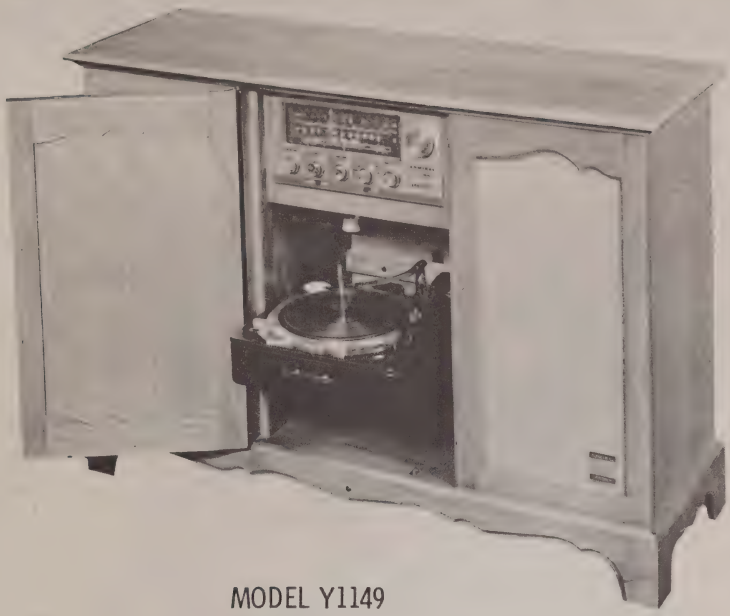


HORIZ OUTPUT SECTION

PHOTOFACT® Folder

**ADMIRAL CHASSIS
7R1, 9J1, 9J1A**

ADMIRAL CHASSIS
7R1, 9J1, 9J1A

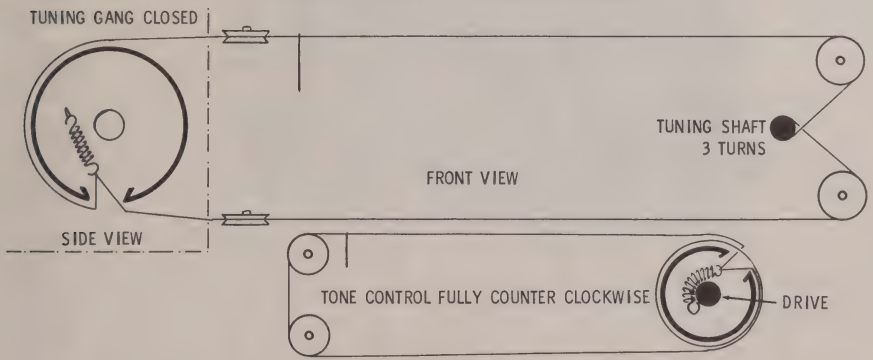


MODEL Y1149

TRADE NAME	Admiral Models Y1081, Y1102, Y1103, Y1139 (Tuner Ch. 9J1A, Amp. Ch. 7R1) Y1149, Y1171, Y1172, Y1173, Y1191, Y1192 (Tuner Ch. 9J1, Amp. Ch. 7R1) SS1081, SS1092, SS1093, SS1139 (External Speaker Systems)
MANUFACTURER	Admiral Corp., 3800 Cortland Street, Chicago 47, Illinois
TYPE SET	AC Operated 9 Tube FM-AM Tuner, 7 Tube Stereo Amplifier, And 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 155 Watts, 1.4 Amp. @117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	535 — 1620KC FREQ. MOD. 88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER RC6G9M-18W OR RC6G9M-18X — SEE SIMILAR ADMIRAL RC607 SERIES — PHOTOFACT SET 398 FOLDER 7 OR RECORD CHANGER MANUAL RC-11

DIAL CORD STRINGING

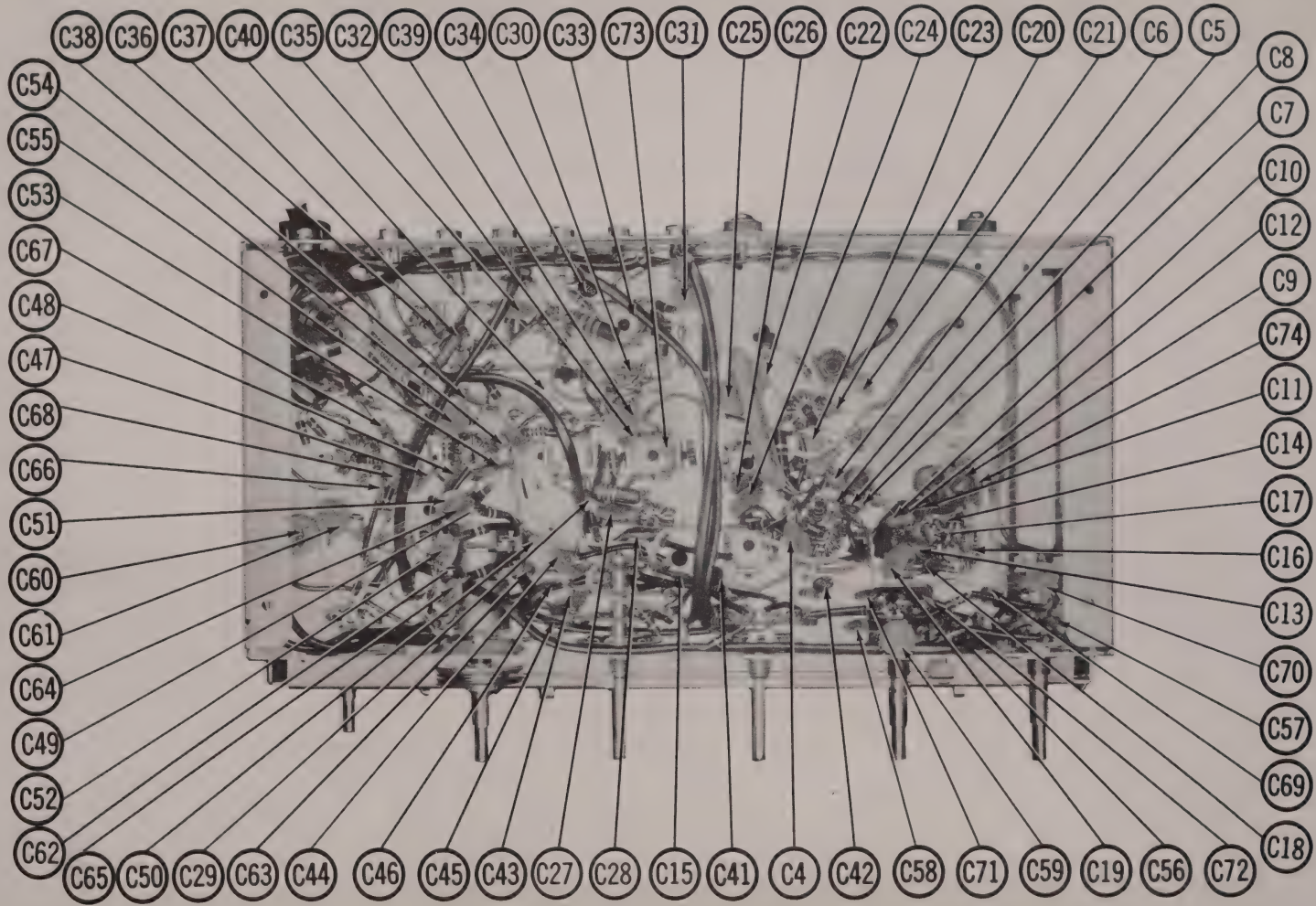


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

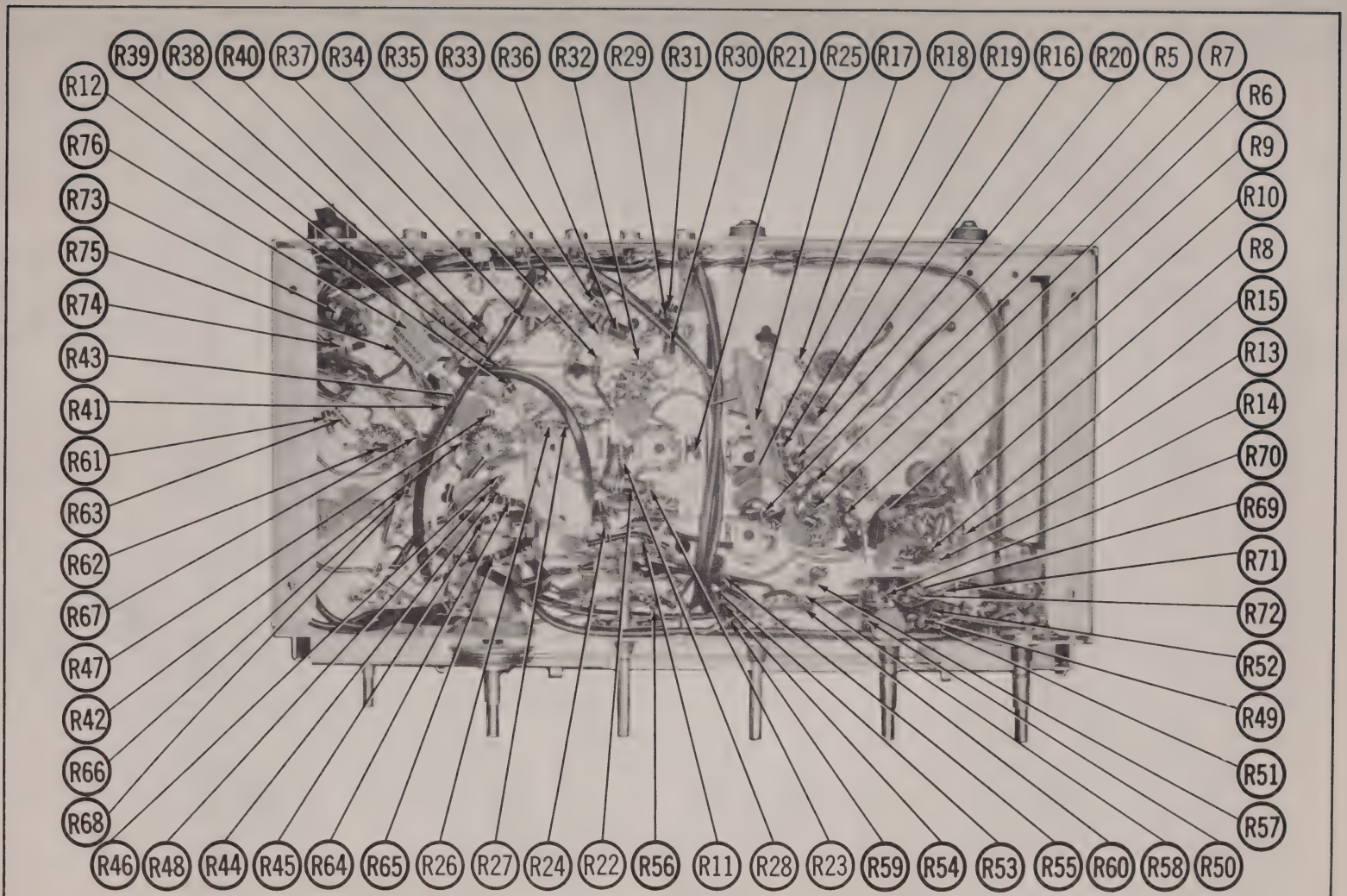
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KN152

SET 509 FOLDER 3



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



TUNER CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

ADMIRAL CHASSIS
7R1, 9J1, 9J1A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness Control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4, A8 thru A15.... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to AM antenna stator lug of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	535KC	Tuning gang fully closed.	"	A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side to ungrounded tube shield floating over FM mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point Ⓐ. Common to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side to ungrounded tube shield floating over FM mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 47K to point Ⓐ. Low side to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2 SLIGHTLY retouch A8 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 150Ω in each side.	98MC (Unmod.)	(FM) 98MC	DC probe thru 1meg to point Ⓐ. Common to chassis.	A16, A17	Adjust for maximum output.

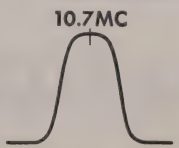


FIG. 1

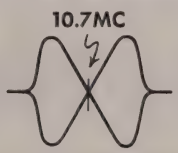
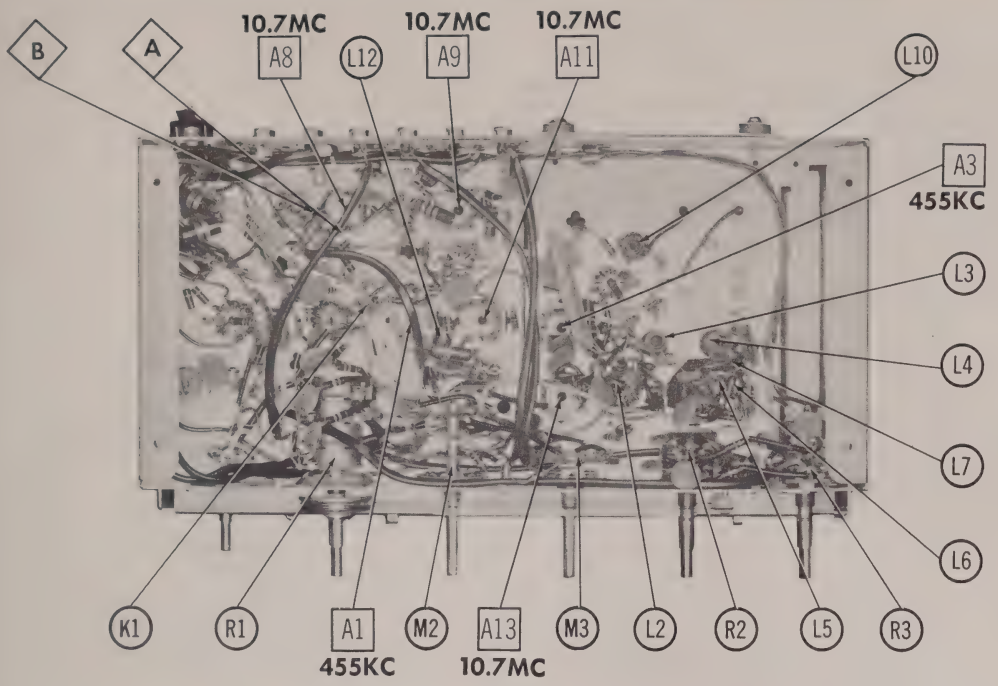
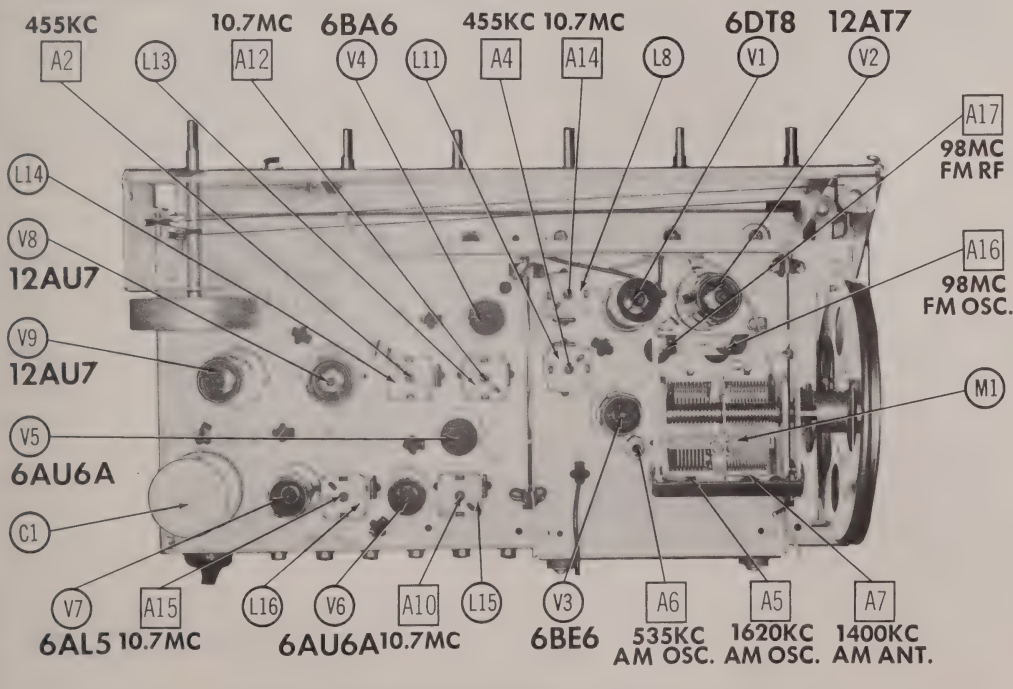


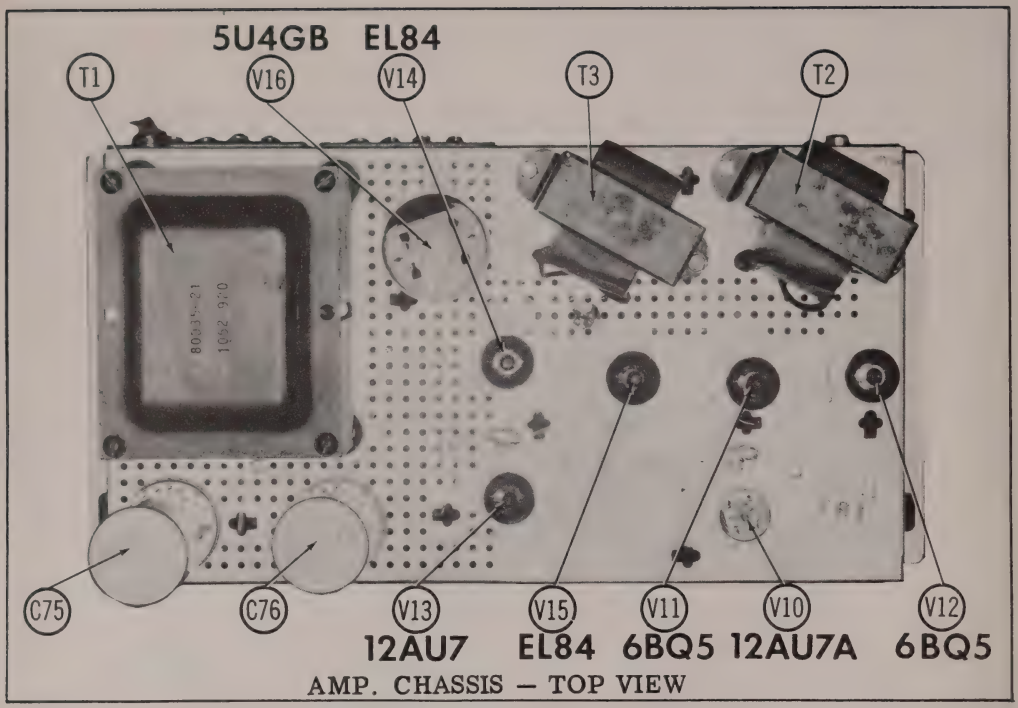
FIG. 2



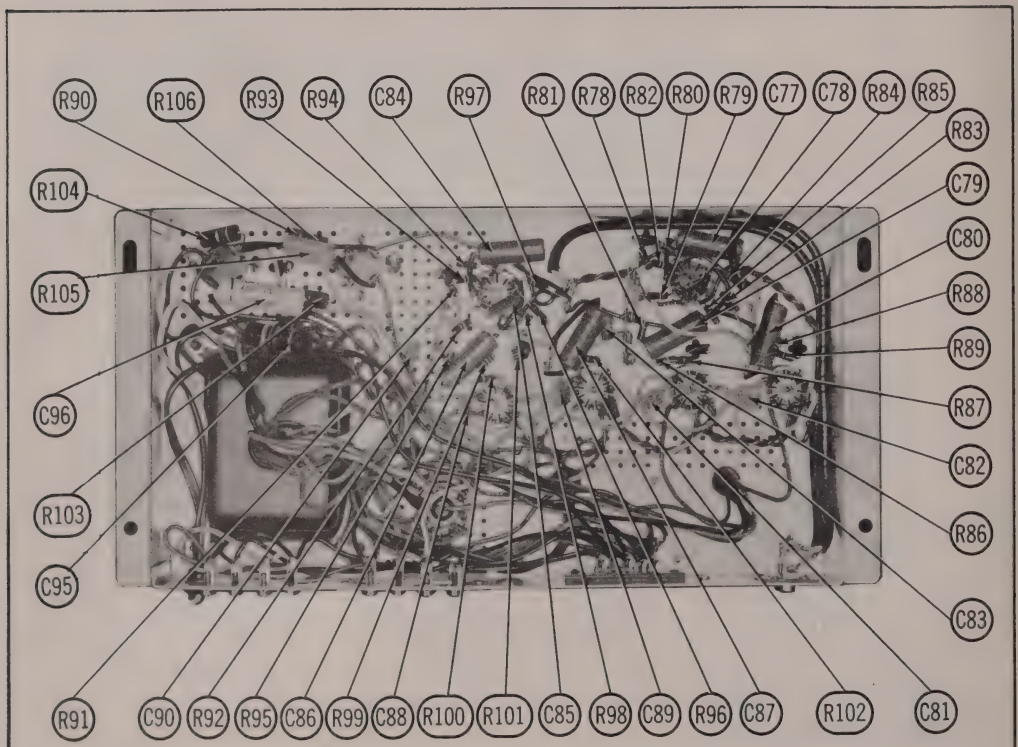
TUNER CHASSIS BOTTOM VIEW



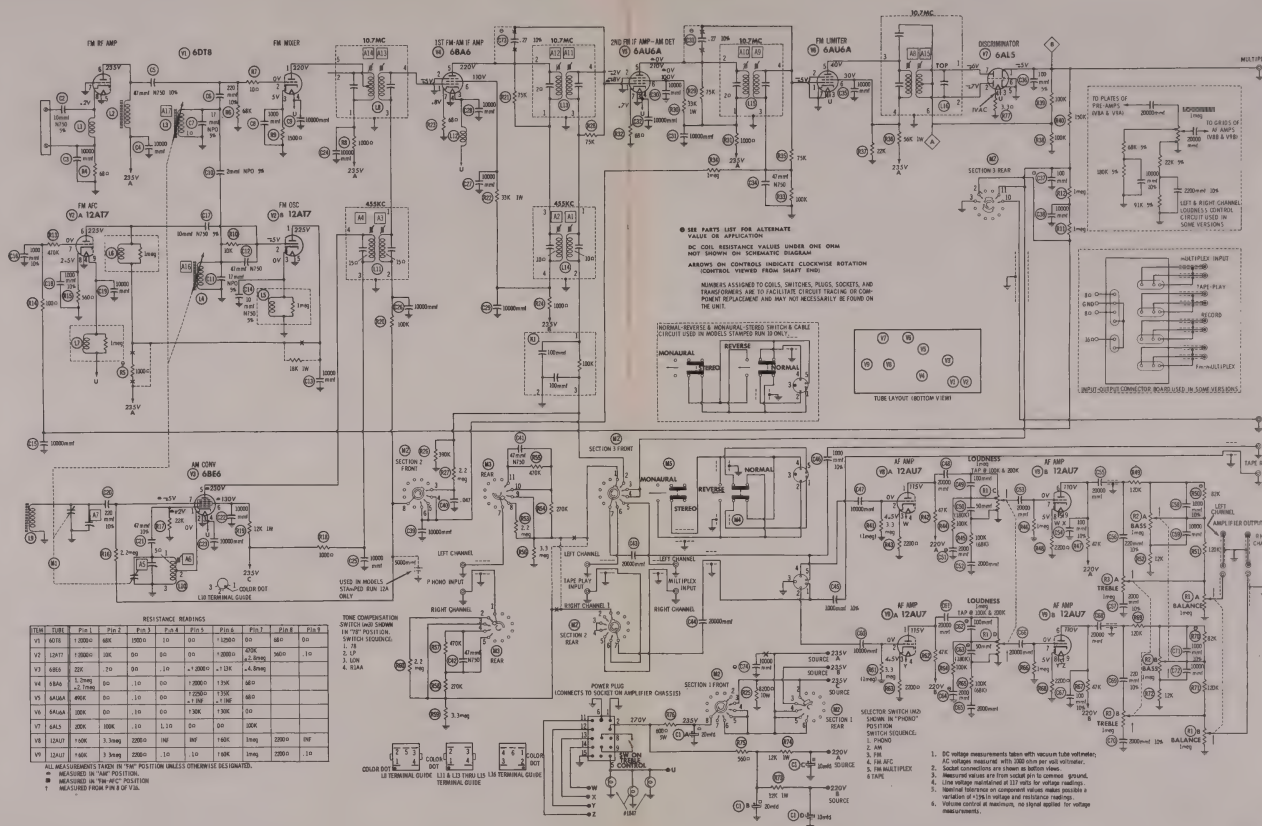
TUNER CHASSIS-TOP VIEW



AMP. CHASSIS – TOP VIEW



AMP. CHASSIS – BOTTOM VIEW


FM RF AMP
V1 6DT8
FM MIXER
10.7MC
1ST FM-AM IF AMP
V6 6BA6
2ND FM IF AMP - AM DET
V5 6AU6A
10.7MC
FM LIMITER
V4 6AU6A
10.7MC
DISCRIMINATOR
V7 6AL5
MULTIPLEX OUTPUT
FM AFC
V10 A 12AT7
FM OSC
V10 B 12AT7
455KC
455KC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
NORMAL-REVERSE & MONAURAL-STEREO SWITCH & CABLE CIRCUIT USED IN MODELS STAMPED RUN IN ONLY
TUBE LAYOUT (BOTTOM VIEW)
TO PLATES OF FM-AMPS. (V8A & V9A)
LOUDNESS CONTROL
TO GRIDS OF AF AMPS. (V8B & V9B)
LEFT & RIGHT CHANNEL LOUDNESS CONTROL CIRCUIT USED IN SOME VERSIONS
MULTIPLEX INPUT
TAPE-PLAY
RECORD
Fm-MULTIPLEX
INPUT-OUTPUT CONNECTOR BOARD USED IN SOME VERSIONS
FM OUTPUT
LEFT CHANNEL
TAPE RECORD OUTPUT
RIGHT CHANNEL
AM CONV
V3 6BE6
L30 TERMINAL GUIDE
USED IN MODELS STAMPED RUN 12A ONLY
P. HONO INPUT
LEFT CHANNEL
RIGHT CHANNEL
TAPE PLAY INPUT
MULTIPLEX INPUT
SECTION 2 FRONT
SECTION 2 REAR
SECTION 3 FRONT
MONAURAL
REVERSE
NORMAL
STEREO
AF AMP V8 A 12AU7
AF AMP V8 B 12AU7
AF AMP V9 A 12AU7
AF AMP V9 B 12AU7
LOUDNESS TAP @ 100K & 200K
LEFT CHANNEL AMPLIFIER OUTPUT
RIGHT CHANNEL
BASS
TREBLE
BALANCE
SECTION 1 FRONT
SECTION 1 REAR
SOURCE
TONE COMPENSATION SWITCH (AM) SHOWN IN "FM" POSITION. SWITCH SEQUENCE. 1. TB 2. LP 3. LON 4. RIAA
POWER PLUG (CONNECTS TO SOCKET ON AMPLIFIER CHASSIS)
FM ON TERRIS CONTROL
#1847
COLOR DOT
L31 & L33 THRU L35 TERMINAL GUIDE
SELECTOR SWITCH (AM) SHOWN IN "PHONO" POSITION
SWITCH SEQUENCE: 1. PHONO 2. AM 3. FM 4. FM AFC 5. FM MULTIPLEX 6 TAPE

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DT8	1 200Ω	680K	1500Ω	1Ω	0Ω	1200Ω	0Ω	68Ω	0Ω
V2	12AT7	1 200Ω	10K	0Ω	0Ω	0Ω	1 200Ω	470K ±2.5%	560Ω	.1Ω
V3	6BE6	22K	2Ω	0Ω	.1Ω	1 200Ω ±1.2K	12K	1 5Ω ±4.5meg		
V4	6BA6	1.2meg ±2.1meg	0Ω	.1Ω	0Ω	1 200Ω	135K	68Ω		
V5	6AU6A	490K	0Ω	.1Ω	0Ω	1 250Ω ±1.1MΩ	135K	68Ω		
V6	6AU6A	100K	0Ω	.1Ω	0Ω	130K	130K	0Ω		
V7	6AL5	200K	100K	.1Ω	1.1Ω	0Ω	0Ω	100K		
V8	12AU7	160K	3.3meg	2200Ω	INF	INF	160K	1meg	2200Ω	INF
V9	12AU7	160K	3.3meg	2200Ω	.1Ω	.1Ω	160K	1meg	2200Ω	.1Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
- MEASURED IN "AM" POSITION.
- MEASURED IN "FM-MPX" POSITION
- † MEASURED FROM PIN 8 OF V3A.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured with 1000 ohm per volt voltmeter.
3. Socket connections are shown as bottom views.
4. Measured values are from socket pin to common ground.
5. Line voltage maintained at 117 volts for voltage readings.
6. Nominal tolerance on component values makes possible a variation of ±3% in voltage and resistance readings.
7. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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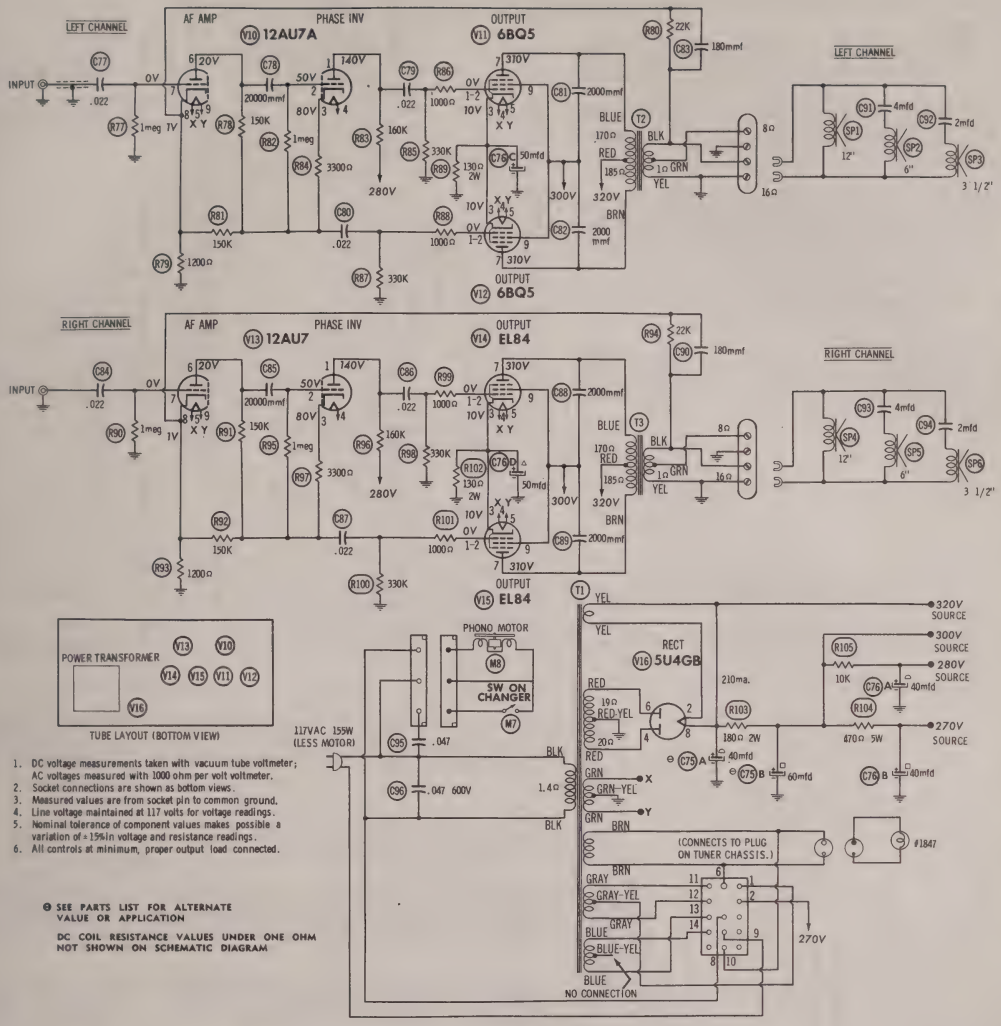
ADMIRAL CHASSIS 7R1, 9J1, 9J1A



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V10	12AU7A	†170K	1.1meg	155K	.1Ω	.1Ω	300K	1meg	1200Ω	.1Ω
V11	6BQ5	NC	330K	130Ω	.1Ω	.1Ω	NC	†170Ω	NC	†180Ω
V12	6BQ5	NC	330K	130Ω	.1Ω	.1Ω	NC	†185Ω	NC	†180Ω
V13	12AU7	†170K	1.1meg	155K	.1Ω	.1Ω	300K	1meg	1100Ω	.1Ω
V14	EL84 6BQ5	NC	330K	130Ω	.1Ω	.1Ω	NC	†170Ω	NC	†180Ω
V15	EL84 6BQ5	NC	330K	130Ω	.1Ω	.1Ω	NC	†185Ω	NC	†180Ω
V16	5U4GB	NC	¶	NC	20Ω	NC	19Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V16. NC NO CONNECTION

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TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
	• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •				
V1	FM RF Amp. -FM Mixer	6DT8	V6	FM Limiter	6AU6A
V2	FM Osc. -AFC	12AT7	V7	Discriminator	6AL5
V3	AM Converter	6BE6	V8	Left Channel AF Amp.	12AU7
V4	1st FM-AM IF Amp.	6BA6	V9	Right Channel AF Amp.	12AU7
V5	2nd FM IF Amp. -AM Det.	6AU6A			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	350	67D7-104	AFH4-19-10	D0179.3	FP474.5	TMQ-4637	TVLS-4716.5*	
B	■20	350							
C	▲10	350							
D	10	350							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	10 N750 5%		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C6	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C7	17 NPO 5%			TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C8	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	2 NPO 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C11	17 NPO 5%			TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C12	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	10 N750 5%		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCC-Q10
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C17	10 N750 5%		N750-DI 10	DTN-10	C10Q1C	CCTN-100	CN7-410	10TCU-Q10
C18	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C21	47 10%			D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.27 10%	#65B28-0027 Note 1						
C34	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	100 5%			TCZ-100	C10T1C	CM-19B-101J	CNO-310	10TCC-T10
C37	100	Note 2	SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C41	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C42	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C43	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C44	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C45	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C46	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C47	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C48	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C49	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C50	50		SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C51	2000	Note 3	BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C52	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C53	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C54	100 10%			D6-101	L10T1	CCD-101	GP310	10TS-T10
C55	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C56	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C57	2000 10%		DI-2000	DD-202	PM6D2	CCD-202	GP220	10TS-D20
C58	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C59	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C60	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C61	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C62	100	Note 4	SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C63	50	Note 4	SI 50	D6-500	L10Q50	CCD-500	GP450	10TS-Q50
C64	2000	Note 3	BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C65	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C66	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C67	100 10%			D6-101	L10T1	CCD-101	GP310	10TS-T10
C68	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C69	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C70	2000 10%		DI-2000	DD-202	PM6D2	CCD-202	GP220	10TS-D20
C71	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C72	10000		BPD-01	DD-103	BPA10S1	CCD-103	B-110	5HK-S10
C73	.27 10%	#65B28-0027 Note 1						
C74	10000	Note 5	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

Admiral Part Number.
Note 1. Not used in Run 10. Note 2. Runs 10, 11, 12 use 800mmf in this application.
Note 3. Runs 10, 11, 12 use 10000mmf -10% in this application.
Note 4. Runs 10, 11, 12 use .022mfd 200V 10% in this application.
Note 5. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	1/2	75C48-4					Balance, Left Channel
B	1meg	1/2						Balance, Right Channel
C	1meg *	1/2						Loudness, Right Channel
D	1meg *	1/2						Loudness, Left Channel
R2A	1meg	1/2	75D46-10					Bass, Left Channel
B	1meg	1/2						Bass, Right Channel
R3A	1meg	1/2	75D46-9					Treble, Left Channel
B	1meg	1/2						Treble, Right Channel
C	Switch							Power Off-On

* Taps @100K and 200K.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	68Ω	
R5	1000Ω	Note 1
R6	68K	
R7	10Ω	
R8	1000Ω	
R9	1500Ω	
R10	10K	
R11	1meg	
R12	1meg	
R13	470K	

ITEM No.	RATING	REMARKS
R14	100Ω	
R15	560Ω	
R16	2.2meg	
R17	22K	
R18	1000Ω	
R19	12K 1W	
R20	100K	
R21	75K	
R22	33K 1W	
R23	68Ω	

ITEM No.	RATING	REMARKS
R24	1000Ω	
R25	8200Ω 10W	IRC#PW10-8.2KΩ
R26	390K	
R27	2.2meg	
R28	75K	
R29	75K	
R30	33K 1W	
R31	1000Ω	
R32	68Ω	
R33	100K	

TUNER PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT) (cont)

ITEM No.	RATING	REMARKS
R34	1meg	
R35	75K	
R36	56K 1W	
R37	22K	
R38	100K	
R39	100K	
R40	150K	
R41	3.3meg	(1meg) *
R42	47K	
R43	2200Ω	
R44	100K	(180K) *
R45	100K	(68K) *
R46	1meg	
R47	47K	
R48	2200Ω	

ITEM No.	RATING	REMARKS
R49	120K	
R50	82K	Note 1
R51	120K	
R52	12K	
R53	2.2meg	
R54	270K	
R55	470K	
R56	3.3meg	
R57	470K	
R58	270K	
R59	3.3meg	
R60	2.2meg	
R61	3.3meg	(1meg) *
R62	47K	
R63	2200Ω	

ITEM No.	RATING	REMARKS
R64	100K	(180K) *
R65	100K	(68K) *
R66	1meg	
R67	47K	
R68	2200Ω	
R69	120K	
R70	82K	Note 1
R71	120K	
R72	12K	
R73	12K 1W	
R74	12K 1W	
R75	560Ω	
R76	600Ω 5W	IRC#PW5-600Ω
R77	3.3Ω	

* Value Used in Runs 10, 11, 12.
Note 1. Not used in Runs 10, 11.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA	
K1	Diode Filter	100mmf, 100mmf, 100K	63A3-2	Centralab Sprague	PC-326 D-4

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ADMIRAL PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Coil	73D20-17				
L2	RF Choke	73B31-4	BC-566	4623	RTC-8522	12uh
L3	FM RF Coil	69B233-2①				
L4	FM Osc. Coil	69B233-2②				
L5	Cathode Choke	73B31-5 ③	BC-561 *	4602 *	RTC-8515 *	1uh
L6	RF Choke	73B31-5 ③	BC-561 *	4602 *	RTC-8515 *	1uh
L7	Fil. Choke	73B31-5 ③	BC-561 *	4602 *	RTC-8515 *	1uh
L8	1st FM IF Trans.	72D28-72				
L9	Loopstick	69B244-1 ④	BC-418 *	705-A		
L10	AM Osc. Coil	69B243-1	BC-393	70-OSC	RTC-8647	
L11	1st AM IF Trans.	72D28-70	BC-352	12-C1	RTC-8632	
L12	Fil. Choke	73A2-14	BC-562	4604	RTC-8516	1.3uh
L13	2nd FM IF Trans.	72D28-68	FM-254	1463	RTC-8599	
L14	2nd AM IF Trans.	72D28-71	BC-353	12-C2	RTC-8633	
L15	3rd FM IF Trans.	72D28-68	FM-254	1463	RTC-8599	
L16	Discriminator	72D28-73	FM-253	1464	RTC-8665	

① Includes C7. ② Includes C11.
③ Wound on 1meg Resistor. ④ Includes Complete Ass'y.
* Parallel With 1meg Resistor.

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M1	Tuning Cap.	68B71-3	2 Gang. (Ant. 12-356mmf, Osc. 8-104mmf)
M2	Switch	77B97-2	Function (Rotary Wafer Type)
M3	Switch	77B56-5	Compensation (Rotary Wafer Type)
M4	Switch	77C1-18	Normal-Reverse (DPDT Slide Type)
M5	Switch	77C1-19	Stereo-Mono. (SPDT Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V10	Left Channel AF Amp. - Phase Inv.	12AU7A	V13	Right Channel AF Amp. - Phase Inv.	12AU7
V11	Left Channel Output	6BQ5 (EL84/6BQ5) *	V14	Right Channel Output	EL84/6BQ5
V12	Left Channel Output	6BQ5 (EL84/6BQ5) *	V15	Right Channel Output	EL84/6BQ5
			V16	Rectifier	5U4GB

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C75A	▲40	450	67D7-40	AFH3-45-25	C0365	FP430.9	TMT-3709	TVLS-3793.2*	①
B	■60	450							
C	▲40	350							①
C76A	▲40	350	67D7-39	AFH4-53	D0460	FP430.6	TMQ-4247	TVL-4622.3	
B	■40	350							
C	50	25							
D	▲50	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① C75C is not used. Some versions may use a 60-40mfd (Part #67D7-103).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C77	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C78	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C79	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C80	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C81	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C82	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C83	180		SI 180	D6-181	L10T18	CCD-181	GP318	10TS-T18
C84	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C85	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C86	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C87	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C88	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C89	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C90	180		SI 180	D6-181	L10Q18	CCD-181	GP318	10TS-T18
C91	4mfd 10V	#64B13-5	P289Z-4.0					
C92	2mfd 10V	#64B13-7	P289Z-2.0		MP2W2			
C93	4mfd 10V	#64B13-5	P289Z-4.0					
C94	2mfd 10V	#64B13-7	P289Z-2.0		MP2W2			
C95	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C96	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

\# Admiral Part Number.

AMP PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R78	1meg	
R79	150K	
R80	1200Ω	
R81	22K	
R82	150K	
R83	1meg	
R84	160K	
R85	3300Ω	
R86	330K	
R87	1000Ω	

ITEM No.	RATING	REMARKS
R88	330K	
R89	1000Ω	
R90	130Ω 2W	
R91	1meg	
R92	150K	
R93	150K	
R94	1200Ω	
R95	22K	
R96	1meg	
R97	160K	

ITEM No.	RATING	REMARKS
R98	3300Ω	
R99	330K	
R100	1000Ω	
R101	330K	
R102	1000Ω	
R103	130Ω 2W	
R104	180Ω 2W	
R105	470Ω 5W	IRC#PW5-470Ω
R106	10K	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: ADMIRAL PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2						
T1	117V@ 1.4A	600VCT @.210A	5V@ 3A	80D35-21					
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT @3.6A	6.3VCT @.3A (CT Not Used)	6.3VCT @.3A						
	SEC. 6								
	6.3V@ 2.4A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA: ADMIRAL PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC.						
T2	6700Ω CT	16Ω CT	79D56-15		A-3830			
T3	6700Ω CT	16Ω CT	79D56-15		A-3830			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA: ADMIRAL PART No.	QUAM PART No.	NOTES
	SIZE	FIELD	V. C. IMP.			
SP1	12"	PM	14-16Ω	78C153-4	12A4AZ16	
SP2	6"	PM	14-16Ω	78C162-1	6A31Z16	
SP3	3½"	PM	6-8Ω	78C148-5	3A15TZ8	
SP4	12"	PM	14-16Ω	78C153-4	12A4AZ16	
SP5	6"	PM	14-16Ω	78C162-1	6A31Z16	
SP6	3½"	PM	6-8Ω	78C148-5	3A15TZ8	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA: ADMIRAL PART No. CARTRIDGE	ADMIRAL PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M6	409C34-1-1	98C95-8† * or 98C95-9† ♦	13TB	Not Req.	26S	S1-1* & S3-3 *	8TA4-S	N-8TA-S *	† Sapphire ♦ Diamond
	409B33-1-1	98C15-10†† & 98C15-100† or 98C15-102♦							Use in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M7	Switch	408A-1	Off-On-Reject (Part of Changer)
M8	Motor	407D29-1	Phono Drive (4 Speed)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	21C125-1	Chassis 9J1
Dial Scale	21C125-2	Chassis 9J1A
Dial Pointer	25B72-2	Red, Tuning
Dial Pointer	25A73-1	Red, Visual Balance Indicator
Dial Crystal	24C31-1	
Knob	33C382-1	Gray Plastic, Loudness, Treble, Bass (Outer)
Knob	33C359-2	Gray Plastic, Balance, Treble, Bass (Inner)
Knob	700B208-3	Gray Plastic, Function, Compensator
Knob	33D385-2	Gray Plastic, Tuning
Cabinet	35E526-1	Walnut, Model Y1081
Cabinet	35E578-2	Mahogany, Model Y1102
Cabinet	35E578-3	Blonde, Model Y1103
Cabinet	35E562-9	Cherrywood, Model Y1139
Cabinet	35E534-9	Cherrywood, Model Y1149
Cabinet	35E577-1	Walnut, Model Y1171
Cabinet	35E577-2	Mahogany, Model Y1172
Cabinet	35E577-3	Blonde, Model Y1173
Cabinet	35E538-1	Walnut, Model Y1191
Cabinet	35E538-2	Mahogany, Model Y1192
Cabinet	35E527-1	Walnut, Model SS1081
Cabinet	35E525-2	Mahogany, Model SS1092
Cabinet	35E525-3	Blonde, Model SS1093
Cabinet	35E563-9	Cherrywood, Model SS1139

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

ARKAY
MODEL AM-5

ARKAY
MODEL AM-5

ARKAY
MODEL AM-5

TRADE NAME	Arkay Model AM-5
MANUFACTURER	Arkay International, Inc., 88-06 Van Wyck Expressway, Jamaica 18, N. Y.
TYPE SET	AC Operated 5 Tube AM Tuner
POWER SUPPLY	110-120 Volts AC, 60 Cycles
TUNING RANGE—BROADCAST	540 — 1650KC RATING 20 Watts, .21 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Function switch set to Narrow Band.
Suggested Alignment Tools:
A1 thru A4, A7, A8...GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, All.....GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298
WALSCO #2516, 2518, 2519
A6, A9, A10.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

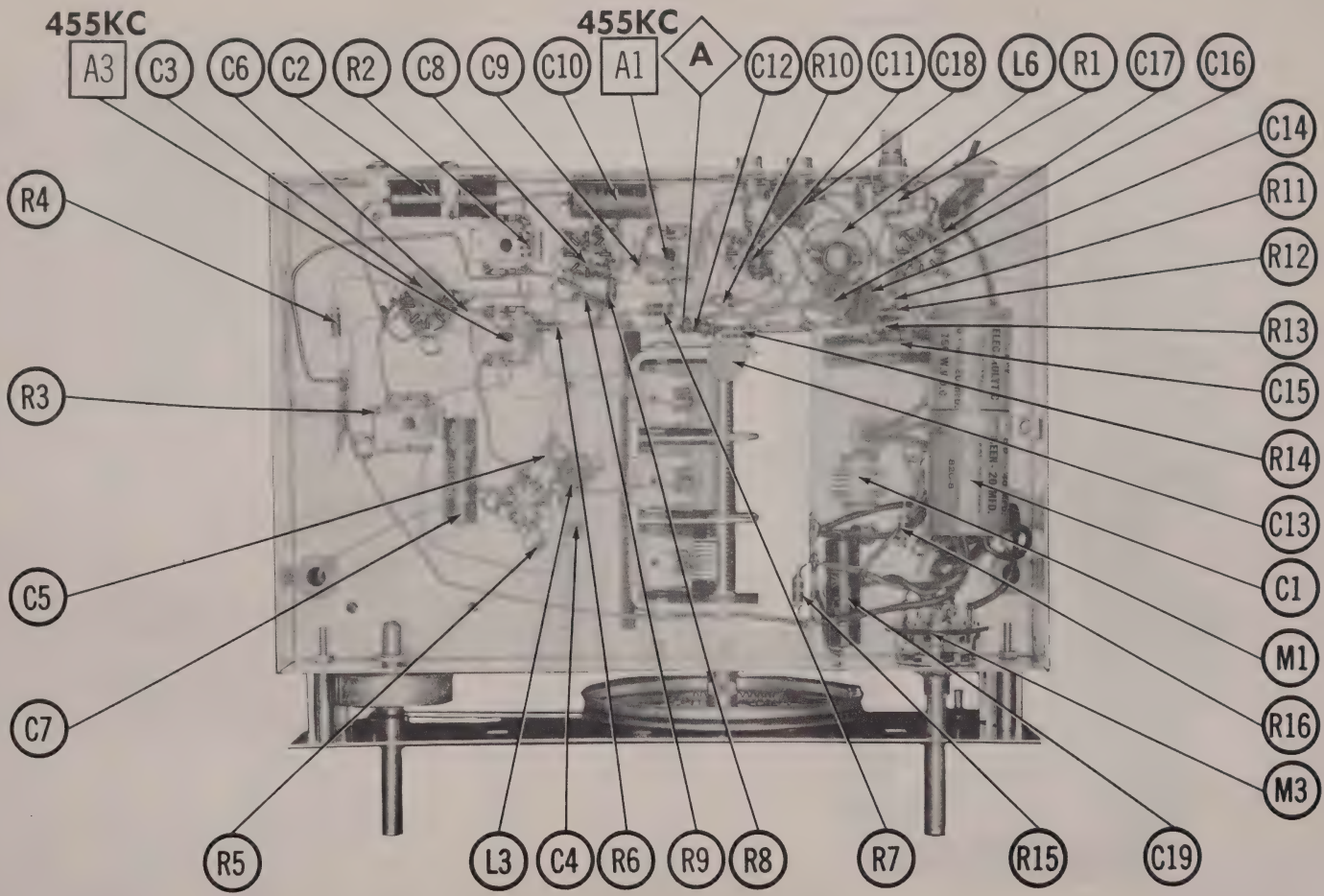
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	DC probe to point ⟨A⟩. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Across antenna terminals with .01mfd in high side.	600KC	600KC	"	A5	"
3.	"	1600KC	1600KC	"	A6	Adjust for maximum deflection. Repeat Steps 2 and 3.
4.	"	600KC	600KC	"	A7, A8	Adjust for maximum deflection.
5.	"	1400KC	1400KC	"	A9, A10	"
6.	High side thru .1mfd to point A. Low side to chassis.	10KC (Unmod.)	Point of non-interference.	AC probe across Output jack.	All	Adjust for MINIMUM deflection.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

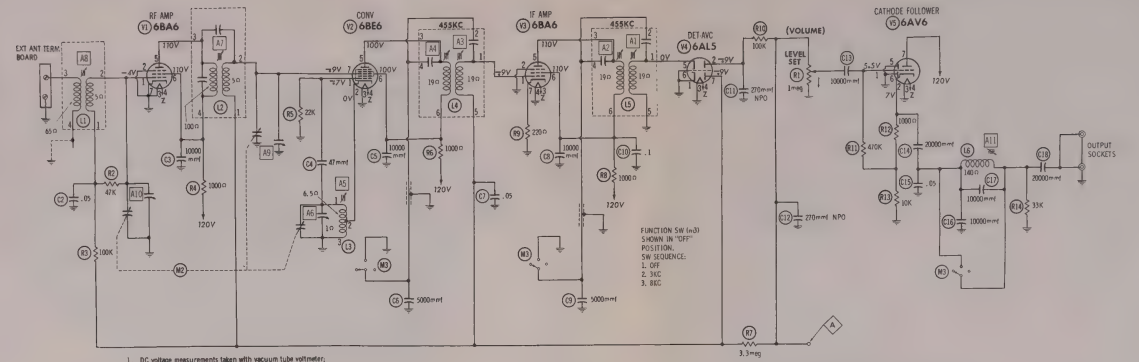
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KH192

SET 509 FOLDER 4

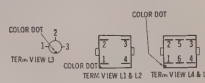


CHASSIS BOTTOM VIEW



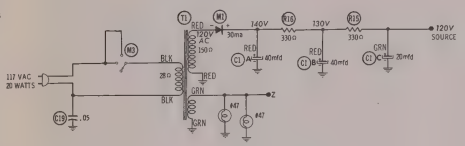
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	6BA6	4.4meg	0Ω	0Ω	.1Ω	†1600Ω	†1600Ω	0Ω
V2	6BE6 EX90	22K	1Ω	0Ω	.1Ω	†1600Ω	†1600Ω	4.3meg
V3	6BA6	4.3meg	0Ω	.1Ω	0Ω	†1600Ω	†1600Ω	220Ω
V4	6AL5 EB91	0Ω	1.1meg	0Ω	.1Ω	19Ω	0Ω	4.3meg
V5	6AV6	480K	11K	0Ω	.1Ω	0Ω	0Ω	†660Ω

† MEASURED FROM OUTPUT OF M1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ARKAY MODEL AM-5

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	RF Amplifier	6BA6
V2	Converter	6BE6/EK90
V3	IF Amplifier	6BA6
V4	Detector-AVC	6AL5/EB91
V5	Cathode Follower	6AV6

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ARKAY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	FM8-2	EX-69	A47-1meg-S	B11-137	SU-54	Level Set
B	Shaft			Not Req.	FKS-1/4	SK-6	Not Req.	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ARKAY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	40	150		PRS3650	BBRT44215	TCT3116	TDLT-4	TVAS-3450 *	
B	40	150							
C	20	150							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	47K	
R3	100K	
R4	1000Ω	
R5	22K	
R6	1000Ω	

ITEM No.	RATING	REMARKS
R7	3.3meg	
R8	1000Ω	
R9	220Ω	
R10	100K	
R11	470K	

ITEM No.	RATING	REMARKS
R12	1000Ω	
R13	10K	
R14	33K	
R15	330Ω	
R16	330Ω	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	47		BPD-000047	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C10	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C11	270 NPO		NPO-SI 270	TCZ-270			CNO-327	10TCC-T27
C12	270 NPO		NPO-SI 270	TCZ-270			CNO-327	10TCC-T27
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	.05 400V		P488N-05	DD-503	CUB4S47	4DP-3-503	GEM-415	4TM-S50
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C19	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ARKAY PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant. Trans.					
L2	RF Trans.					
L3	Osc. Coil		BC-393	70-OSC	RTC-8647	
L4	Input IF Trans.					
L5	Output IF Trans.					
L6	10KC Filter Coil					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	ARKAY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .21A	120V Ⓐ .030A	6.3V Ⓐ 1.8A	HFT-7		PA-8421			

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA ARKAY PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.030A			1N1764 ♦	75A *	SR200 ♦	* Selenium Type ♦ Silicon Type

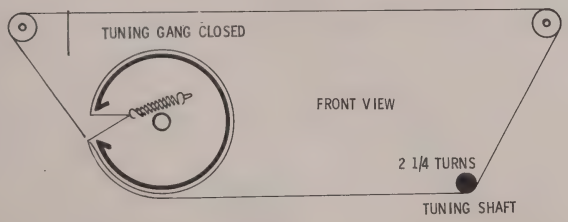
MISCELLANEOUS

ITEM No.	PART NAME	ARKAY PART No.	NOTES
M2	Tuning Cap.		3 Gang (Ant. 18-464mmf, RF 15-460mmf, Osc. 22-170mmf)
M3	Switch		Function (Rotary Type)

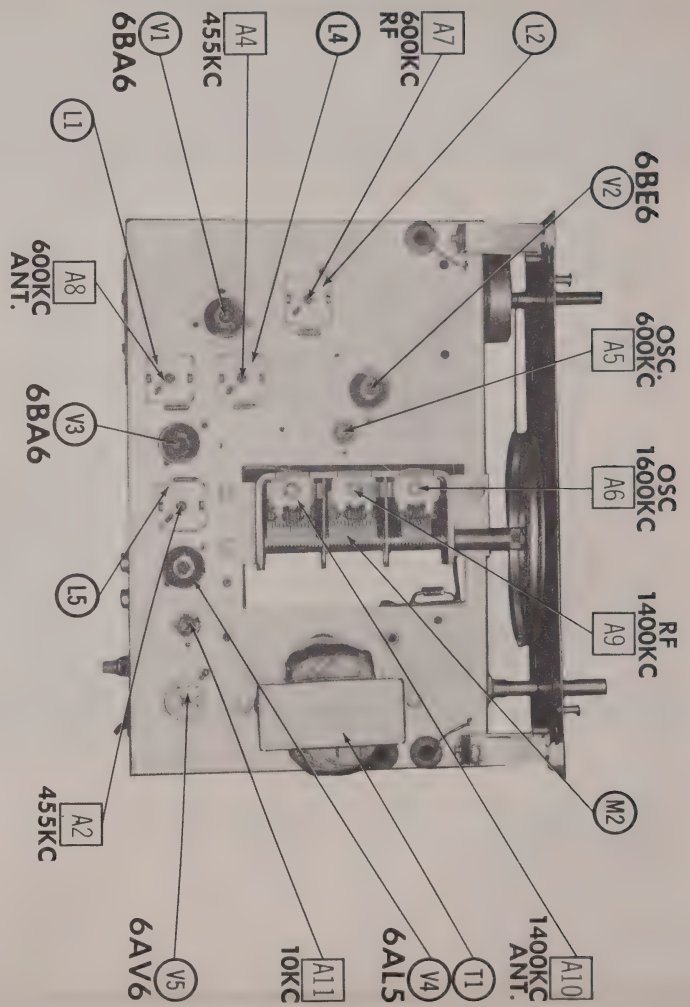
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

DIAL CORD STRINGING

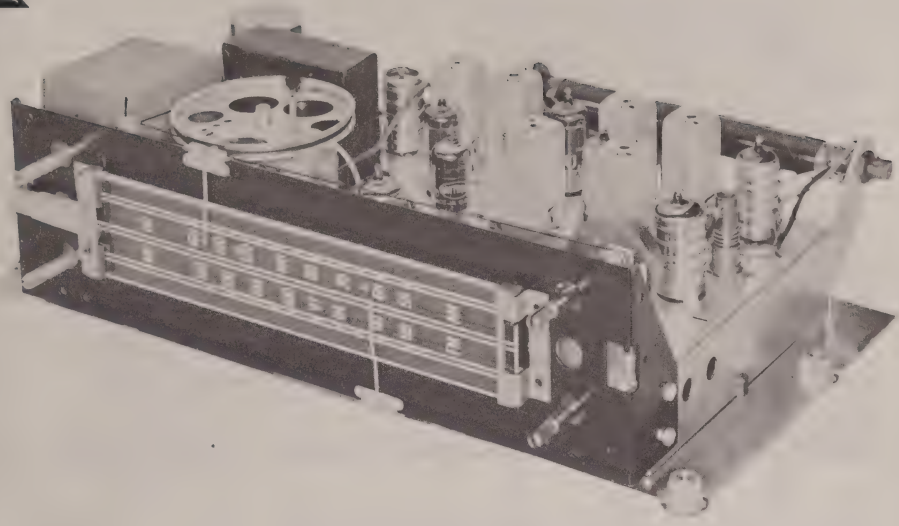


CHASSIS—TOP VIEW



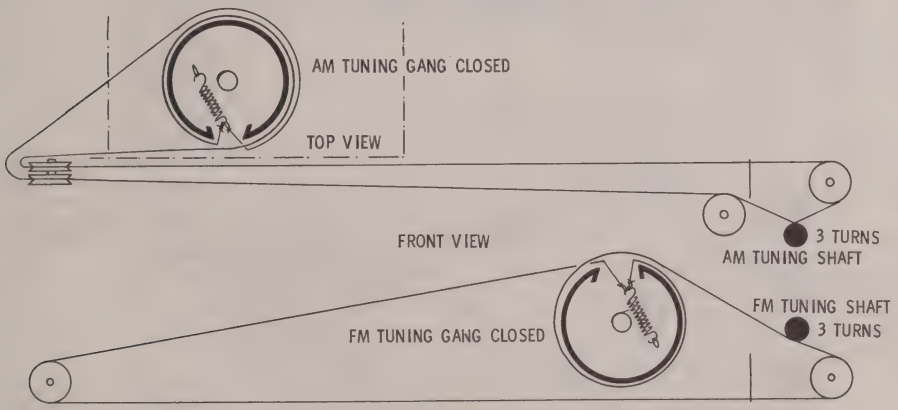
PHOTOFACT® Folder

**CAPITOL
MODEL 954S**



TRADE NAME	Capitol Model 954S		
MANUFACTURER	Capitol Records, Inc., 1 S. Webster Ave., Scranton 5, Pa.		
TYPE SET	AC Operated 9 Tube FM-AM Tuner		
POWER SUPPLY	105-125 Volts AC, 60 Cycles	RATING	33 Watts, .34 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540 — 1600KC	FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KL213

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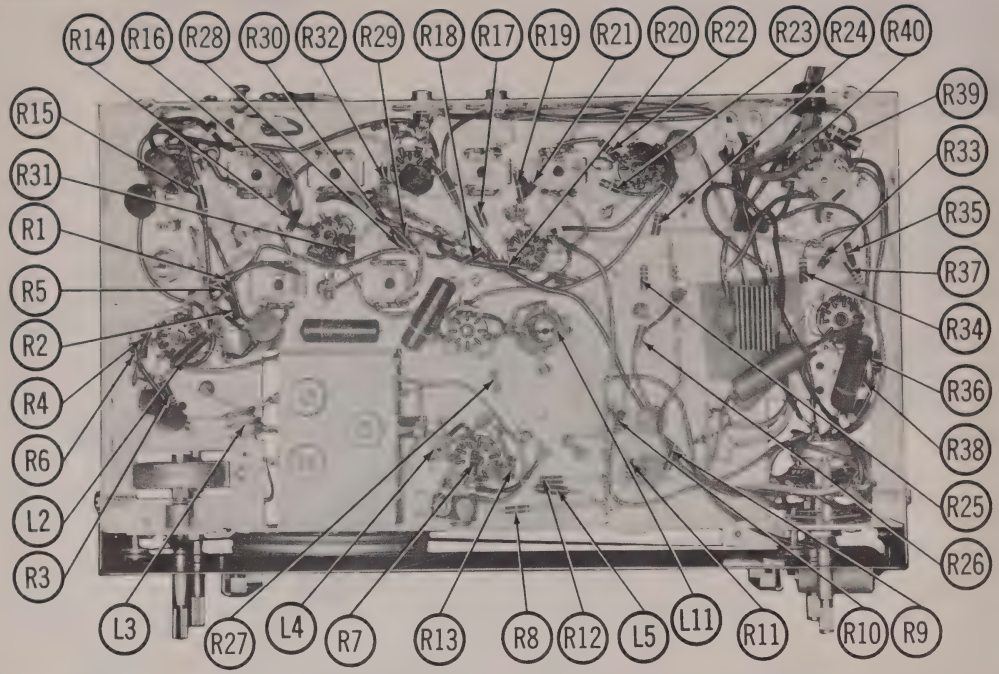
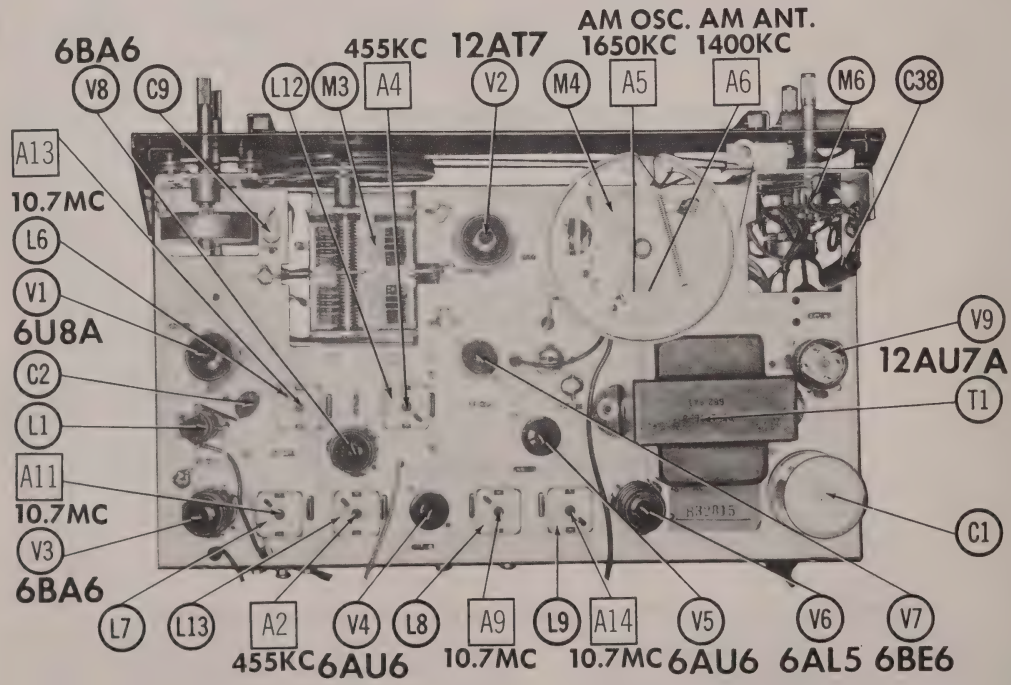
CAPITOL
MODEL 954S

CAPITOL
MODEL 954S

SET 509 FOLDER 5



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1 thru A4, A7 thru A14	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A6, A16	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A15, A17	GENERAL CEMENT #8721, 8722 WALSCO #2519

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to ant. stator lug of AM tuning gang. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully closed.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1650KC	1650KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side thru .01mfd to point Ⓑ. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point Ⓒ. Common to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	DC probe to point Ⓓ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .01mfd to point Ⓑ. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 47K to point Ⓒ. Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
5.	"	"	"	Vert. amp. to point Ⓓ. Low side to chassis.	A14	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru 270Ω carbon resistor to FM antenna terminal. Low side to chassis.	108MC (Unmod.)	(FM) 108MC	DC probe to point Ⓒ. Common to chassis.	A15	Adjust for maximum deflection.
7.	"	106MC	106MC	"	A16	Adjust for maximum deflection while rocking tuning gang.
8.	"	95MC	95MC	"	A17	Adjust for maximum deflection.

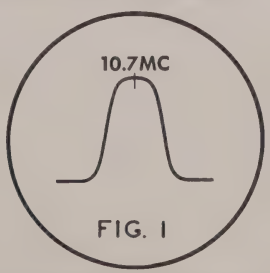


FIG. 1

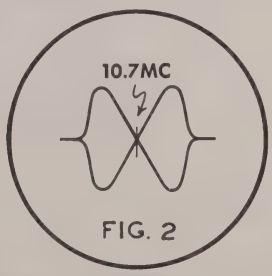
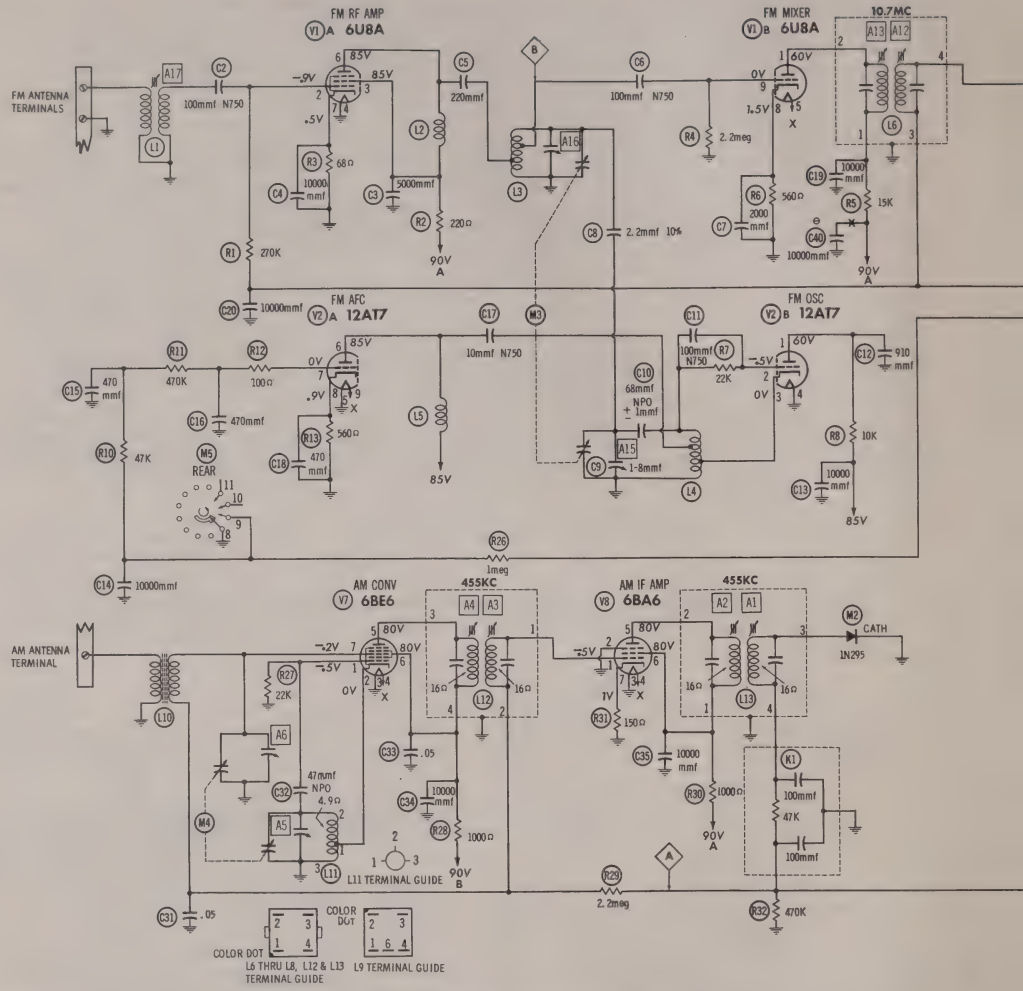


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8A	†16K	2.7meg	†1000Ω	0Ω	.1Ω	†1000Ω	68Ω	560Ω	2.2meg
V2	12AT7	†12K	22K	0Ω	0Ω	0Ω	†1800Ω	1.8meg ■520K	560Ω	.1Ω
V3	6BA6	2.4meg	0Ω	0Ω	.1Ω	†1800Ω	†1800Ω	0Ω		
V4	6AU6	220K	0Ω	0Ω	.1Ω	†2800Ω	†2800Ω	0Ω		
V5	6AU6	100K	0Ω	0Ω	.1Ω	†10K	†10K	0Ω		
V6	6AL5	0Ω	100K	.1Ω	0Ω	200K	0Ω	100K		
V7	6BE6	22K	0Ω	0Ω	.1Ω	†1800Ω	†1800Ω	2.3meg		
V8	6BA6	2.3meg	0Ω	0Ω	.1Ω	†1800Ω	†1800Ω	100Ω		
V9	12AU7A	†47K	100K	2200Ω	.1Ω	.1Ω	†47K	100K	2200Ω	0Ω

ALL MEASUREMENTS MADE IN "STEREO" POSITION.
■ MEASURED WITH "AFC" OFF.
† MEASURED FROM OUTPUT OF M1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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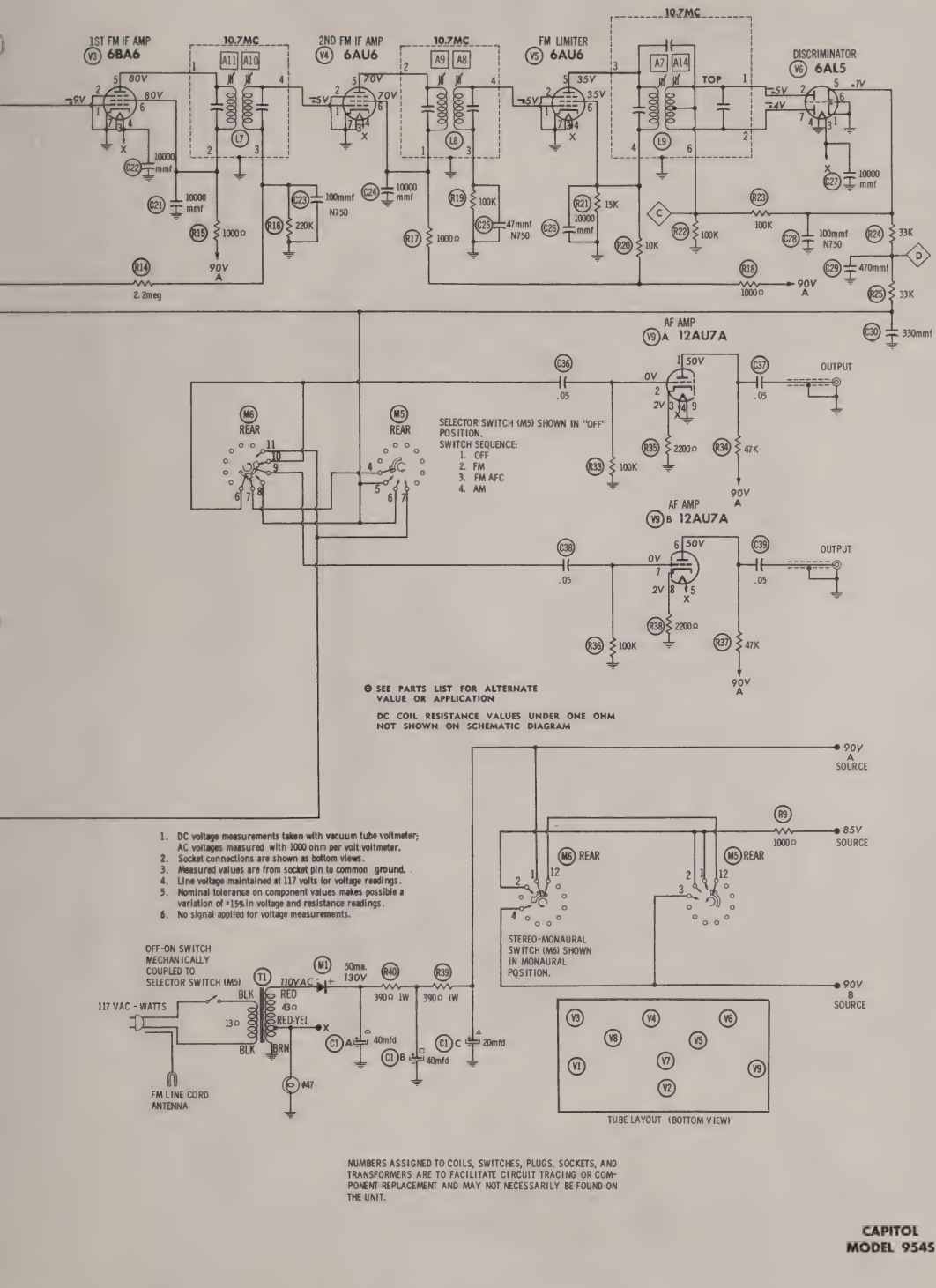
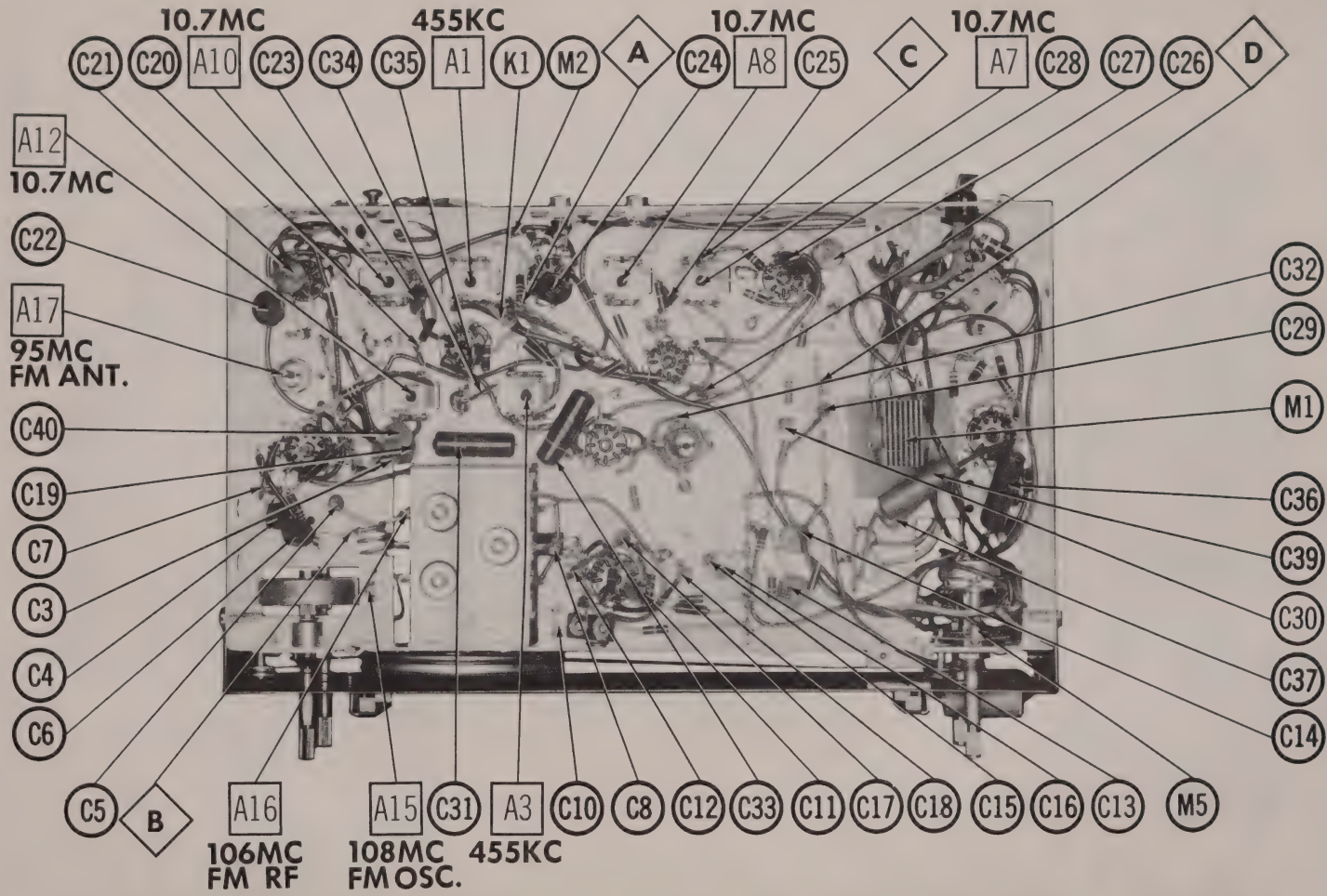

1ST FM IF AMP
V3 6BA6
10.7MC
A11 A10
2ND FM IF AMP
V4 6AU6
10.7MC
A9 A8
FM LIMITER
V5 6AU6
10.7MC
A7 A14
TOP
DISCRIMINATOR
V6 6AL5
AF AMP
V9A 12AU7A
AF AMP
V9B 12AU7A
OUTPUT
OUTPUT
REAR
REAR
SELECTOR SWITCH (M5) SHOWN IN "OFF" POSITION.
SWITCH SEQUENCE:
1. OFF
2. FM
3. FM AFC
4. AM
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. No signal applied for voltage measurements.
90V A SOURCE
85V SOURCE
90V B SOURCE
STEREO-MONAURAL SWITCH (M6) SHOWN IN MONAURAL POSITION.
OFF-ON SWITCH MECHANICALLY COUPLED TO SELECTOR SWITCH (M5)
117 VAC - WATTS
FM LINE CORD ANTENNA
#47
TUBE LAYOUT (BOTTOM VIEW)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

CAPITOL MODEL 9545



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V1	FM RF Amp. -FM Mixer	6U8A
V2	FM Osc. -AFC	12AT7
V3	1st FM IF Amplifier	6BA6
V4	2nd FM IF Amplifier	6AU6
V5	FM Limiter	6AU6
V6	Discriminator	6AL5
V7	AM Converter	6BE6
V8	AM IF Amplifier	6BA6
V9	AF Amplifier	12AU7A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CAPITOL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	200	160-002			FP318.74		TVL-3520	*
B	■40	200							
C	▲20	200							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C3	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C6	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C7	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C8	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CNO-522	10TCC-V22	
C9	1-8	#190-001		829-10				
C10	68 NPO ± 1mmf		NPO-SI 68	TCZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C11	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	910		DI-1000	DD-911	L10T91	CCD-102	GP210	10TS-D10
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C16	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C17	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C18	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C29	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C30	330		BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C31	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C32	47 NPO		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CN7-447	10TCC-Q47
C33	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C37	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C38	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C39	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C40	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. Not used in some versions.
Capitol Part Number.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	270K	
R2	220Ω	
R3	68Ω	
R4	2.2meg	
R5	15K	
R6	560Ω	
R7	22K	
R8	10K	
R9	1000Ω	
R10	47K	
R11	470K	
R12	100Ω	
R13	560Ω	
R14	2.2meg	

ITEM No.	RATING	REMARKS
R15	1000Ω	
R16	220K	
R17	1000Ω	
R18	1000Ω	
R19	100K	
R20	10K	
R21	15K	
R22	100K	
R23	100K	
R24	33K	
R25	33K	
R26	1meg	
R27	22K	
R28	1000Ω	

ITEM No.	RATING	REMARKS
R29	2.2meg	
R30	1000Ω	
R31	150Ω	
R32	470K	
R33	100K	
R34	47K	
R35	2200Ω	
R36	100K	
R37	47K	
R38	2200Ω	
R39	390Ω 1W	
R40	390Ω 1W	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CAPITOL PART No.	REPLACEMENT DATA	
K1	AM Diode RF Filter	100mmf, 100mmf, 47K	195-003	Aerovox	PA-97
				Centralab	PC-50
				Cornell-Dubilier	1HTM1
				Sprague	D-1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA CAPITOL PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	FM Ant. Coil	220-001				
L2	RF Choke	220-002	SW-631	4609	RTC-8519	5.6uh
L3	FM RF Coil	220-003				
L4	FM Osc. Coil	220-004				
L5	RF Choke	220-005	SW-630	4606	RTC-8517	2.5uh
L6	1st FM IF Trans.	215-002	FM-254	1463	RTC-8599	
L7	2nd FM IF Trans.	215-002	FM-254	1463	RTC-8599	
L8	3rd FM IF Trans.	215-002	FM-254	1463	RTC-8599	
L9	Discriminator	215-001	FM-253	1464	RTC-8665	
L10	Loopstick	220-006	BC-418	705-A		
L11	AM Osc. Coil	220-007	BC-393	70-OSC	RTC-8641	
L12	1st AM IF Trans.	215-003	BC-352	12-C1	RTC-8632	
L13	2nd AM IF Trans.	215-003	BC-353	12-C2	RTC-8633	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	REPLACEMENT DATA CAPITOL PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ .34A	110V @ .050A Tap @ 6.3V @ 2.9A	200-002					

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA CAPITOL PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.050A	250-003 *		1N1763 ♦ ‡	100A *	SR200 ♦ ‡	* Selenium Type ♦ Silicon Type ‡ Add surge limiter resistor.

PARTS LIST AND DESCRIPTIONS (Continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		CAPITOL PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N295	250-004	1N295	1N295	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	CAPITOL PART No.	NOTES
M3	Tuning Cap.	190-002	FM
M4	Tuning Cap.	190-003	AM
M5	Switch	240-003	Band Switch, Includes Off-On (Rotary Wafer Type)
M6	Switch	240-002	Stereo (Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	282-003	Glass
Dial Pointer	283-002	AM
Dial Pointer	283-003	FM
Knob	305-012	Tuning, Selector, Stereo-Mon.

WIRING DATA

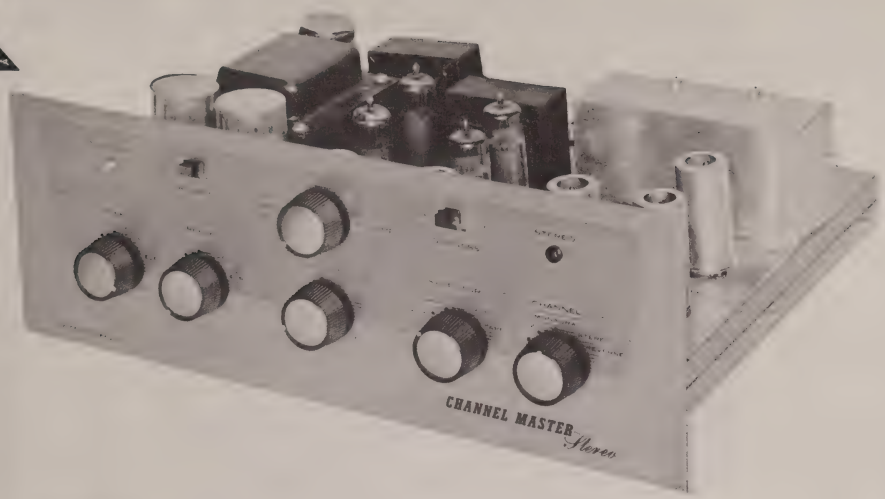
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

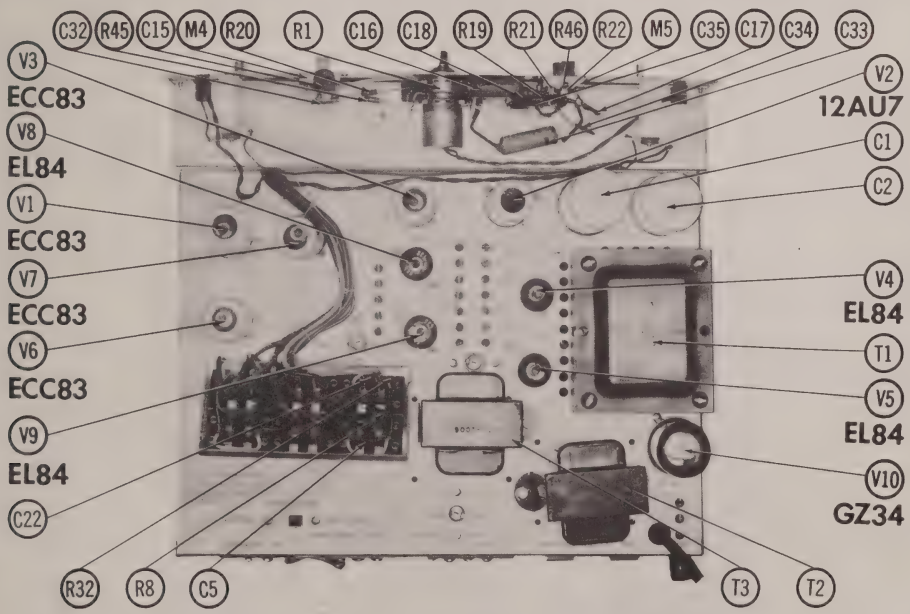
PHOTOFACT® Folder

CHANNEL MASTER MODEL 6600

CHANNEL MASTER MODEL 6600



TRADE NAME	Channel Master Model 6600		
MANUFACTURER	Channel Master Corp., Ellenville, N. Y.		
TYPE SET	AC Operated 10 Tube Stereo Amplifier		
POWER SUPPLY	105-125 Volts AC, 60 Cycles	RATING	105 Watts, .95 Amp. @ 117 Volts AC



CHANNEL MASTER MODEL 6600

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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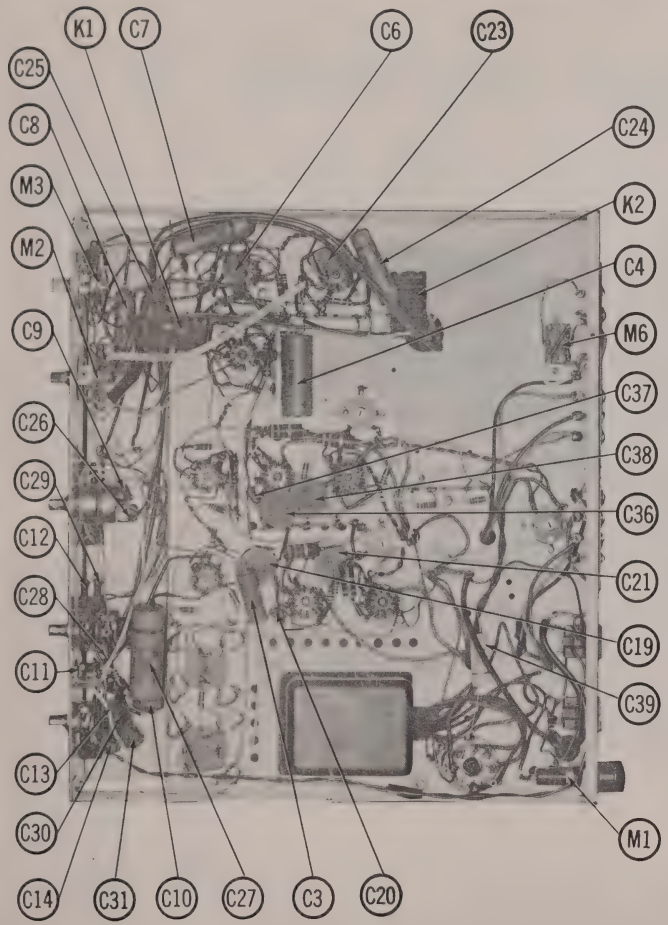
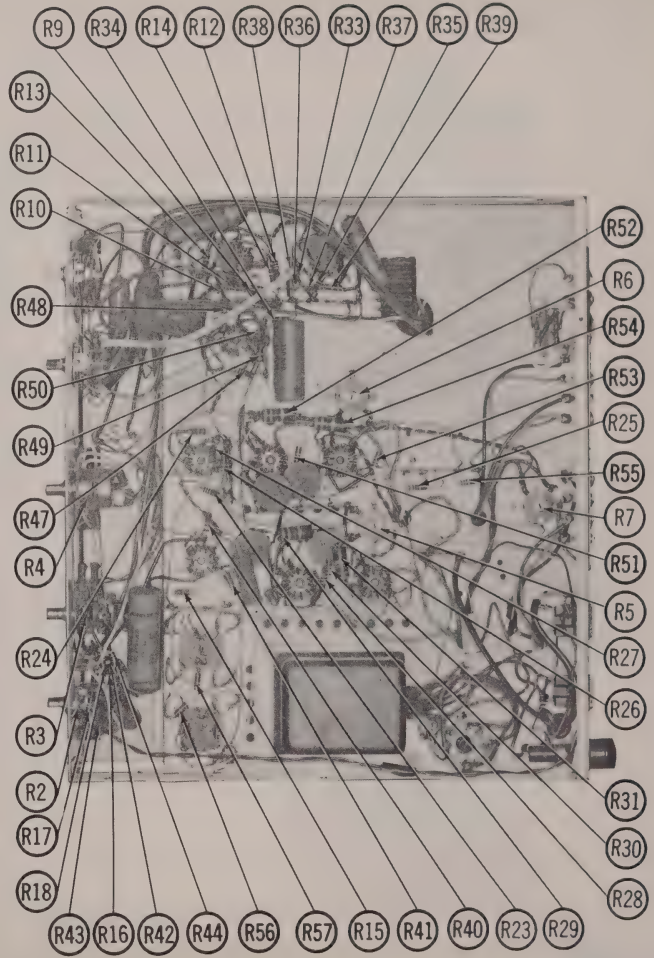
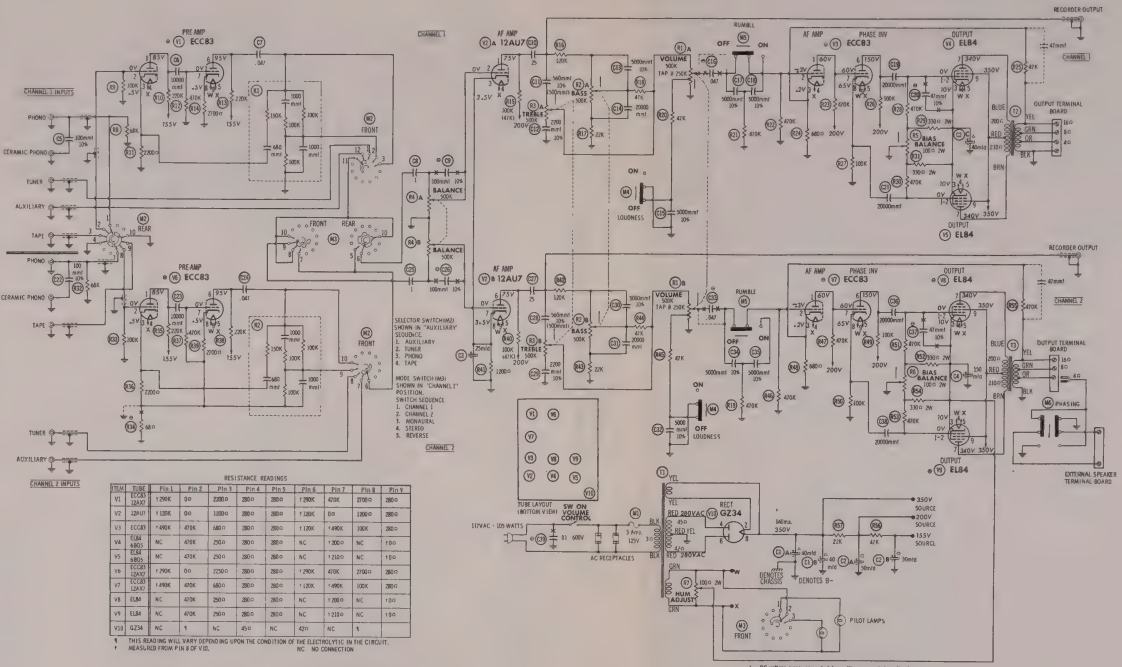


CHASSIS BOTTOM VIEW -
CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	1.29MΩ	0Ω	2200Ω	280Ω	280Ω	1.29MΩ	470K	270Ω	280Ω
V2	12AU7	1.12MΩ	0Ω	1050Ω	280Ω	280Ω	1.12MΩ	0Ω	1050Ω	280Ω
V3	ECC83	1.49KΩ	470K	680Ω	280Ω	280Ω	1.12KΩ	490K	330K	280Ω
V4	EL84	NC	470K	250Ω	280Ω	280Ω	NC	1.30Ω	NC	150Ω
V5	EL84	NC	470K	250Ω	280Ω	280Ω	NC	1.21Ω	NC	150Ω
V6	ECC83	1.49K	0Ω	2250Ω	280Ω	280Ω	1.29K	470K	270Ω	280Ω
V7	ECC83	1.49K	470K	680Ω	280Ω	280Ω	1.12K	490K	100K	280Ω
V8	EL84	NC	470K	250Ω	280Ω	280Ω	NC	1.28Ω	NC	150Ω
V9	EL84	NC	470K	250Ω	280Ω	280Ω	NC	1.21Ω	NC	150Ω
V10	GZ34	NC	1	NC	45Ω	NC	42Ω	NC	1	

† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
‡ MEASURED FROM PIN 8 OF V1E. NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±20% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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CHANNEL MASTER
MODEL 6600

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Channel 1 Preamp.	ECC83/12AX7 (7025) *
V2	Channel 1 AF Amp. - Channel 2 AF Amp.	12AU7
V3	Channel 1 AF Amp. - Phase Inv.	ECC83 (ECC83/7025) *
V4	Channel 1 Output	EL84/6BQ5
V5	Channel 1 Output	EL84/6BQ5
V6	Channel 2 Preamp.	ECC83/12AX7 (7025) *
V7	Channel 2 AF Amp. - Phase Inv.	ECC83/12AX7 (7025) *
V8	Channel 2 Output	EL84 (6BQ5) *
V9	Channel 2 Output	EL84 (6BQ5) *
V10	Rectifier	GZ34

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Channel Master PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	A500	AFH2-57	B0450	FP238	TMD-2650	TVL-2764	
B	▲40	450							
C2A	■50	400	A502	AFH3-134	C1080	FP369.1	TMT-3628	TVL-3725.6	
B	▲30	450							
C	▲40	25							
C3	25	3	A501	SRE3V25	BBR25-3	TT3X25	TD-25-25	TE-1055	
C4	150	15	A503	PRS1370	BR1505	TC25015	TD-150-50	TE-1163	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C8	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C9	100 10%	Note 1	NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C10	.25 400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C11	560 10%	(500) †		D6-561	5R5T56	CCD-561	GP356	10TS-T56
C12	2200 10%				PM6D22	CCD-222	GP222	10TS-D22
C13	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C14	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C16	.047 200V	Note 1	P288N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	2TM-S47
C17	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C18	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C19	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C20	47 10%	Note 1	NPO-SI 470	D6-470	L10Q47	CCD-470	GP447	10TS-Q47

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	20000			DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C22	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C25	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C26	100 10%	Note 1	NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C27	.25 400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C28	560 10%	(500) †	DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C29	2200 10%				PM6D22	CCD-222	GP222	10TS-D22
C30	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C31	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C32	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C33	.047 200V	Note 1	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C34	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C35	5000 10%		DI-5000		PM6D5	CCD-502	JL-247	10TS-D50
C36	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C37	47 10%	Note 1	NPO-SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C38	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C39	.01 600V	Note 1	P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

Note 1. Not used in some versions. † Alternate Value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Channel Master PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K		E-502	BT-64				Volume, Channel 1
	250K Tap							
B	500K			STR-64				Volume, Channel 2
	250K Tap							
C	Switch			KR-1				Power Off-On
R2A	500K		E-500	B-58	AD47-500K-Z		FA55A	Bass, Channel 1
B	500K			SR-58	Not Req.		RU55A	Bass, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R3A	500K		E-500	B-58	AD47-500K-Z		FA55A	Treble, Channel 1
B	500K			SR-58	Not Req.		RU55A	Treble, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R4A	500K		E-501	B-59	AD47-500K-S		FA55L	Balance, Channel 1
B	500K			SR-59	Not Req.		RU55L	Balance, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R5A	100Ω	2(WW)	E-503	WN-101	A43-100	W11-084	R100L	Bias Balance, Channel 1
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	
R6A	100Ω	2(WW)	E-503	WN-101	A43-100	W11-084	R100L	Bias Balance, Channel 2
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	
R7A	100Ω	2(WW)	E-503	WN-101	A43-100	W11-084	R100L	Hum Adjust
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	68K	
R9	100K	
R10	220K	
R11	2200Ω	
R12	470K	
R13	220K	
R14	2700Ω	
R15	100K	(47K) *
R16	120K	
R17	22K	
R18	47K	
R19	470K	
R20	47K	
R21	470K	
R22	470K	
R23	470K	
R24	680Ω	

ITEM No.	RATING	REMARKS
R25	47K	
R26	100K	
R27	100K	
R28	470K	
R29	330Ω 2W	
R30	470K	
R31	330Ω 2W	
R32	68K	
R33	100K	
R34	68Ω	Note 1
R35	220K	
R36	2200Ω	
R37	470K	
R38	220K	
R39	2700Ω	
R40	100K	(47K) *
R41	1200Ω	

ITEM No.	RATING	REMARKS
R42	120K	
R43	22K	
R44	47K	
R45	47K	
R46	470K	
R47	470K	
R48	680Ω	
R49	100K	
R50	100K	
R51	470K	
R52	330Ω 2W	
R53	470K	
R54	330Ω 2W	
R55	47K	
R56	47K	
R57	22K	

* Alternate Value

Note 1. Not used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Channel Master PART No.	REPLACEMENT DATA
K1	Preamp. Plate Coupling	680mmf, 1000mmf, 1000mmf, 100K, 100K, 100K, 150K	F517	
K2	Preamp. Plate Coupling	680mmf, 1000mmf, 1000mmf, 100K, 100K, 100K, 150K	F517	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: Channel Master PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2						
T1	117V @ .95A	560VCT @ .140A	5V @ 1.9A	C500					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 4.7A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA: Channel Master PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC.						
T2	5200Ω CT	16Ω Tap @ 8Ω, 4Ω	C501					
T3	5200Ω CT	16Ω Tap @ 8Ω, 4Ω	C501					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Channel Master PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 125V S/B	F504	F505	313003 (3AG 3A 125V S/B)	342001	MDX3	HKP

MISCELLANEOUS

ITEM No.	PART NAME	Channel Master PART No.	NOTES
M2	Switch	E504	Selector (Rotary Wafer)
M3	Switch	E505	Channel Selector (Rotary Wafer)
M4	Switch	E507	Loudness (DPST Slide Type)
M5	Switch	E506	Rumble (DPDT Slide Type)
M6	Switch	E506	Phasing (DPDT Slide Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	F-511	Volume, Bass, Treble, Balance, Selector, Channel

WIRING DATA

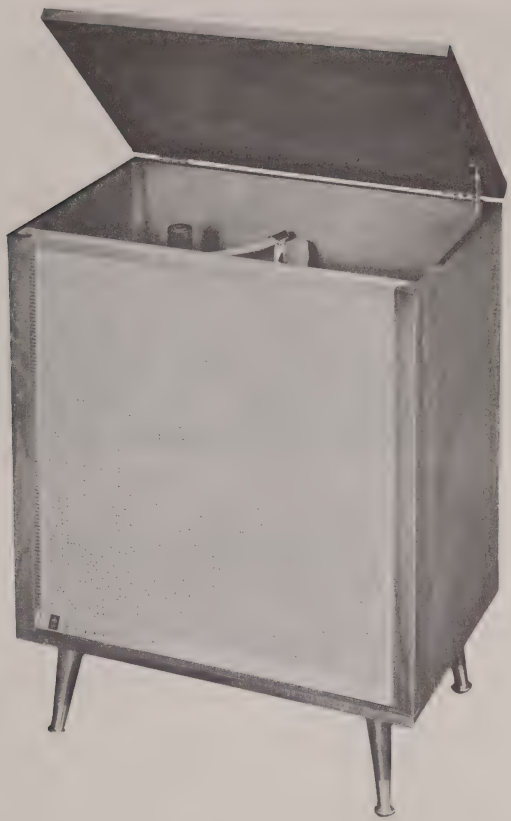
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

CORONADO
MODEL RA48-4053A

CORONADO
MODEL RA48-4053A



CORONADO
MODEL RA48-4053A

TRADE NAME	Coronado Model RA48-4053A
SUPPLIER	Gamble-Skogmo, Inc., 15 N. Eighth Street, Minneapolis 3, Minn.
TYPE SET	AC Operated 4 Tube Stereo Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 34 Watts, .38 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #550-104 - SEE V-M 1201 - PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KT211

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp.-Channel 2 AF Amp.	12AX7 (7025, ECC83) *
V2	Channel 1 AF Amp.-Channel 2 AF Amp.	12AX7 (7025, ECC83) *
V3	Channel 1 Output	50L6GT
V4	Channel 2 Output	50L6GT

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CORONADO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	100	150	150-152	PRS2240	BBRD0183.7	WD235	TDLD-12	TVAS-2463 *	
B	50	150							
C2A	40	150	150-151	PR4-200	BBRQ0174	WQ795	CDB-Q-4422	TVAS-4545 *	
B	40	150							
C	20	150							
D	20	150							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

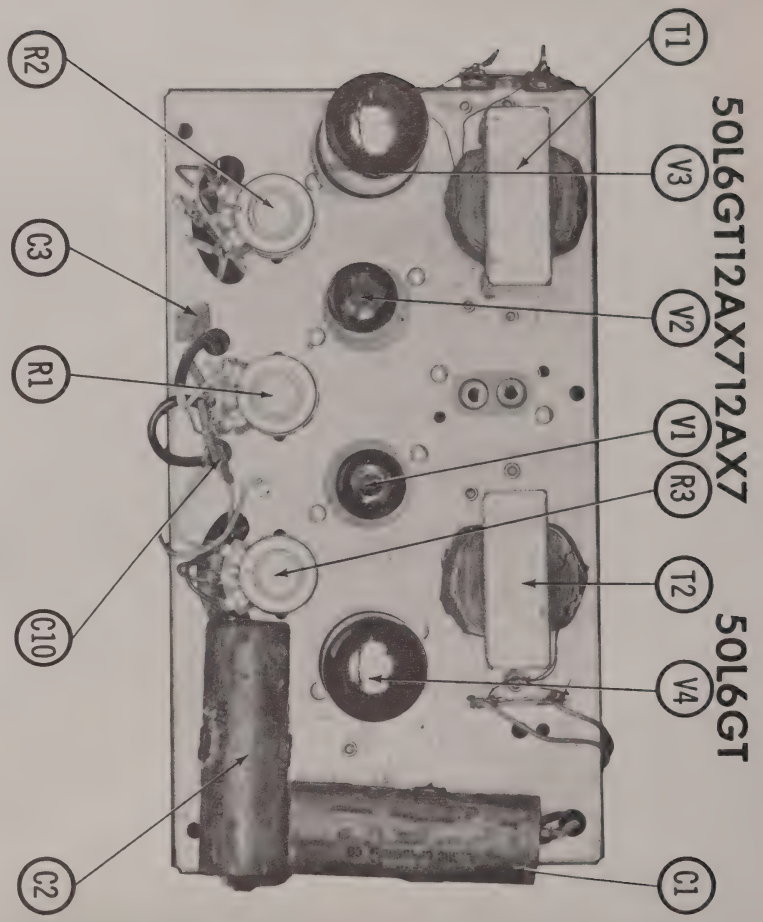
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C4	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C5	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C6	600		1468-0006	D6-601	5W5T6	CM-19B-601M	GP360	1FM-362
C7	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C10	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C11	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C12	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C13	600		1468-0006	D6-601	5W5T6	CM-19B-601M	GP360	1FM-362
C14	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg		120-153	B-76	AD47-2meg-2		FA26A	Loudness, Channel 1
B	2meg			SR-76	Not Req.		RU26A	Loudness, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R2A	100K		120-174	B-40	AD47-100K-S		FA15L	Tone, Channel 2
B	100K			SR-40	Not Req.		RU15L	Tone, Channel 1
C	Shaft			Not Req.	FS-3		CS3500	
R3A	1meg		120-155B	B-69	A47-1meg-S	Q11-137	U54	Balance
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	470K	
R5	330K	
R6	56K	
R7	1000Ω	
R8	220K	
R9	100K	
R10	56K	
R11	680Ω	
R12	6800Ω	
R13	470K	

ITEM No.	RATING	REMARKS
R14	22K	
R15	150Ω	
R16	1000Ω	
R17	470K	
R18	330K	
R19	56K	
R20	1000Ω	
R21	220K	
R22	100K	
R23	56K	

ITEM No.	RATING	REMARKS
R24	680Ω	
R25	6800Ω	
R26	470K	
R27	1000Ω	
R28	22K	
R29	47Ω 1W	
R30	33Ω	IRC #FR-33Ω
R31	150Ω	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC. 1	REPLACEMENT DATA CORONADO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω Tap @ 3%	3-4Ω SEC. 2 200Ω	138-141					
T2	2600Ω Tap @ 3%	SEC. 1 3-4Ω SEC. 2 200Ω	138-141					

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA CORONADO PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	175-151	8A21	
SP2	6"	PM	3-4Ω	175-152	6A15	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA CORONADO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.105A	265-125 *		1N1763 *	2F4 *	SR200 *	* Silicon

PHONO CARTRIDGE

ITEM No.	CORONADO PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE NEEDLE
M2		13T		13		A-44X		10T2-S	

MISCELLANEOUS

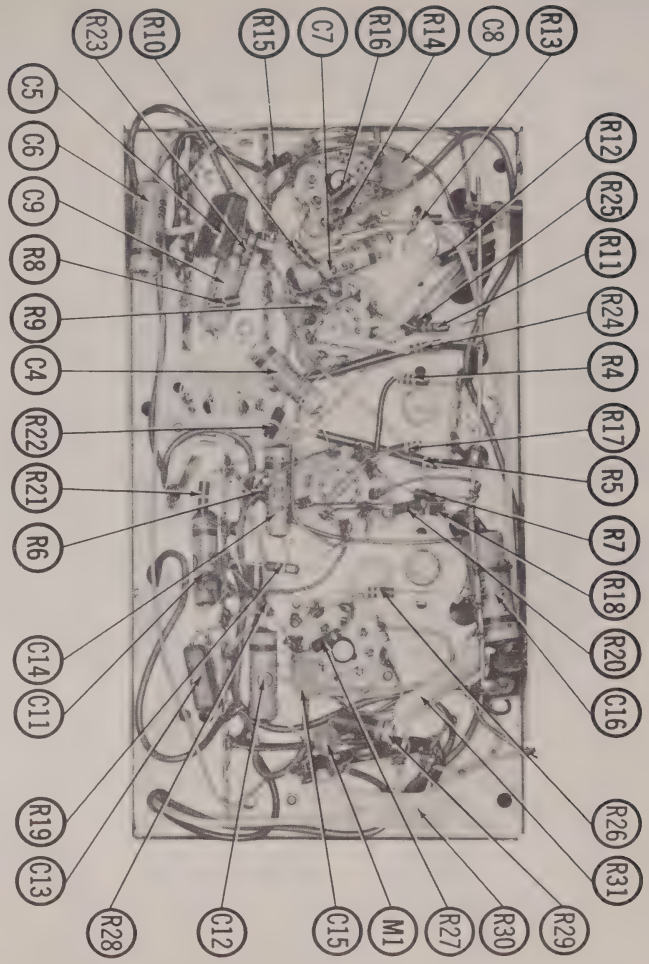
ITEM No.	PART NAME	CORONADO PART No.	NOTES
M3	Switch		Off-On (Part of Changer)
M4	Motor		Phono Drive (Part of Changer)

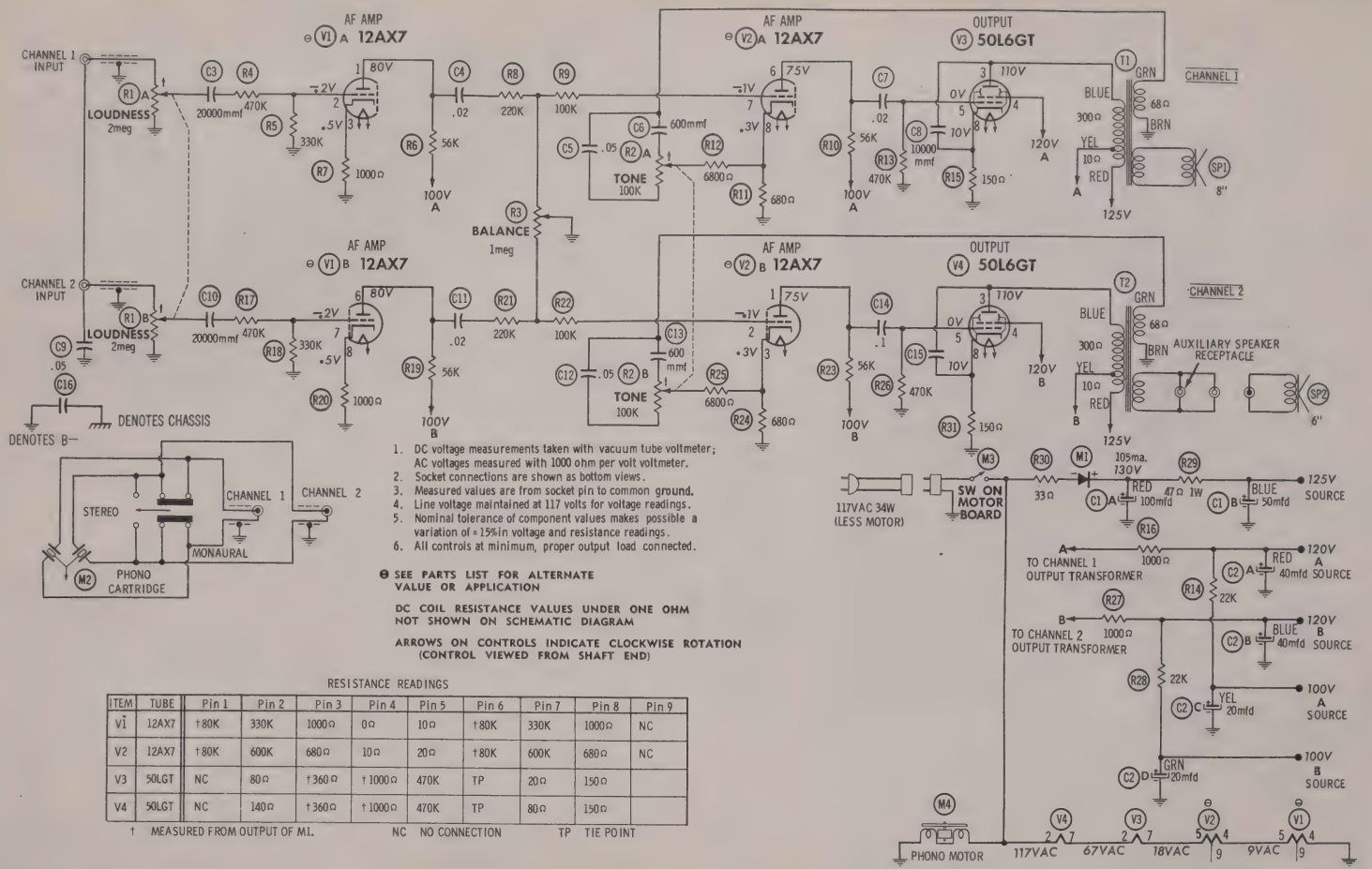
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	220-158	Loudness, Tone, Balance
Knob	220-200	Record Changer
Cabinet	500-144	

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†80K	330K	1000Ω	0Ω	10Ω	†80K	330K	1000Ω	NC
V2	12AX7	†80K	600K	680Ω	10Ω	20Ω	†80K	600K	680Ω	NC
V3	50LGT	NC	80Ω	†360Ω	†1000Ω	470K	TP	20Ω	150Ω	
V4	50LGT	NC	140Ω	†360Ω	†1000Ω	470K	TP	80Ω	150Ω	

† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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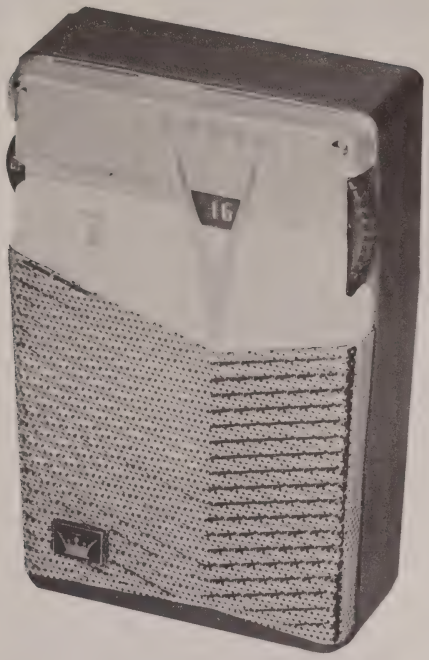
CORONADO
MODEL RA48-4053A

PHOTOFACT® Folder with CIRCUITRACE®

CROWN MODEL TR-777

CROWN
MODEL TR-777



CROWN
MODEL TR-777

TRADE NAME	Crown Model TR-777		
IMPORTER	Shriro, Inc., 276 Fourth Ave., New York 10, N. Y.		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	4.5 Volts DC	RATING	7 MA@4.5 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC		15 MA@4.5 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5...GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A4, A6..... GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

SET 509 FOLDER 8

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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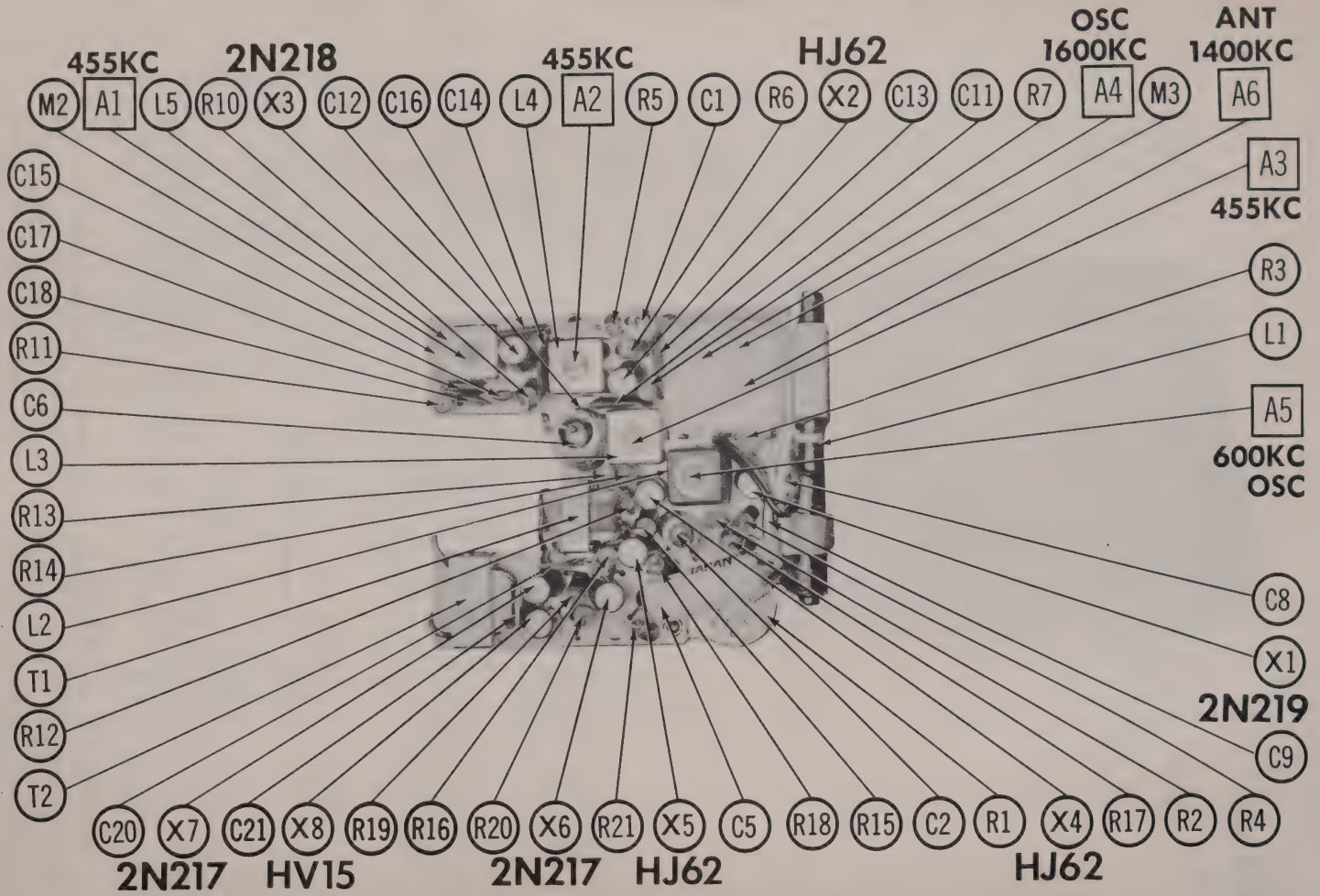
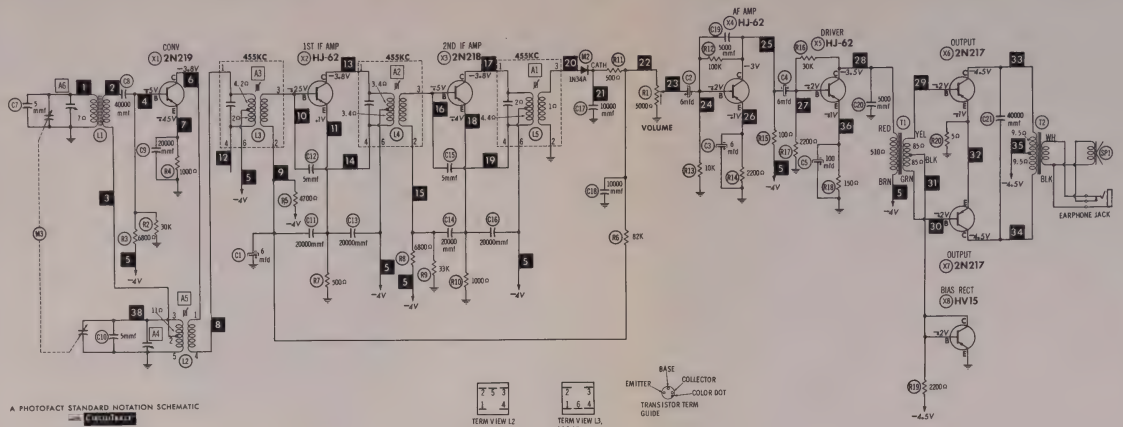


CHASSIS TOP VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

CIRCUITRACE

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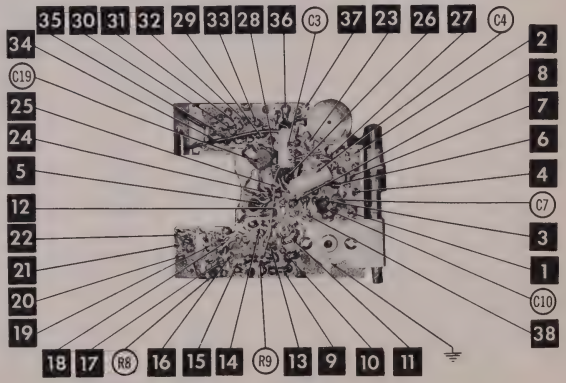
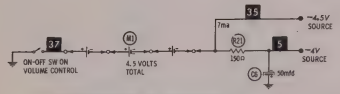


A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

CROWN
MODEL TR-777

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N219	Converter	2N219	2N485	2N219	PNP
X2	HJ-62	1st IF Amplifier				PNP
X3	2N218	2nd IF Amplifier	2N218	2N482	2N218	PNP
X4	HJ-62	AF Amplifier	2N406			PNP
X5	HJ-62	Driver	2N406			PNP
X6	2N217	Output	2N407	2N633	2N217	PNP
X7	2N217	Output	2N407	2N633	2N217	PNP
X8	HV15	Bias Rectifier	1N2326			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	CROWN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	6	6		XPP-6006	NLW6-25	TT10X6	ML6-6	TE-1085	
C2	6	6		XPP-6006	NLW6-25	TT10X6	ML6-6	TE-1085	
C3	6	6		XPP-6006	NLW6-25	TT10X6	ML6-6	TE-1085	
C4	6	6		XPP-6006	NLW6-25	TT10X6	ML6-6	TE-1085	
C5	100	6		PTT-6100	NLW100-6	TT6X100	ML100-6	TE-1102	
C6	50	6		PTT-6050	NLW50-6	TT6X50	ML50-6	TE-1100	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C8	40000							
C9	20000		C80V203AM	DDA-203	H-05S2		TA-120	TG-S20
C10	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C11	20000		C80V203AM	DDA-203	H-05S2		TA-120	TG-S20
C12	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C13	20000		C80V203AM	DDA-203	H-05S2		TA-120	TG-S20
C14	20000		C80V203AM	DDA-203	H-05S2		TA-120	TG-S20
C15	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C16	20000		C80V203AM	DDA-203	H-05S2		TA-120	TG-S20
C17	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C18	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C19	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C20	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C21	40000							

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CROWN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4		B16-214				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	30K	
R3	6800Ω	
R4	1000Ω	
R5	4700Ω	
R6	82K	
R7	500Ω	
R8	6800Ω	

ITEM No.	RATING	REMARKS
R9	33K	
R10	1000Ω	
R11	500Ω	
R12	100K	
R13	10K	
R14	2200Ω	
R15	100Ω	

ITEM No.	RATING	REMARKS
R16	30K	
R17	2200Ω	
R18	150Ω	
R19	2200Ω	
R20	5Ω	
R21	150Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		CROWN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick					
L2	Osc. Coil					
L3	1st IF Trans.					
L4	2nd IF Trans.					
L5	3rd IF Trans.					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.8Ω	1	TRT-27					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CROWN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	360Ω CT	6-8Ω	TRT-28					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CROWN PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	CROWN PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			930 *		1015 *		M-15R *	* 3 Required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		CROWN PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N34A		1N34A	1N34A	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	CROWN PART No.	NOTES
M3	Tuning Cap.		2 Gang

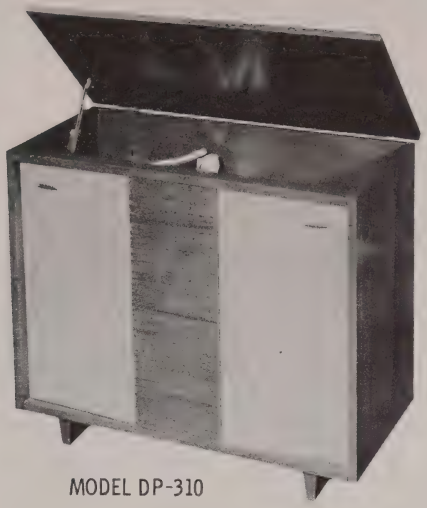
WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

PHOTOFACT® Folder

DECCA MODELS
DP-310, DP-311, DP-312

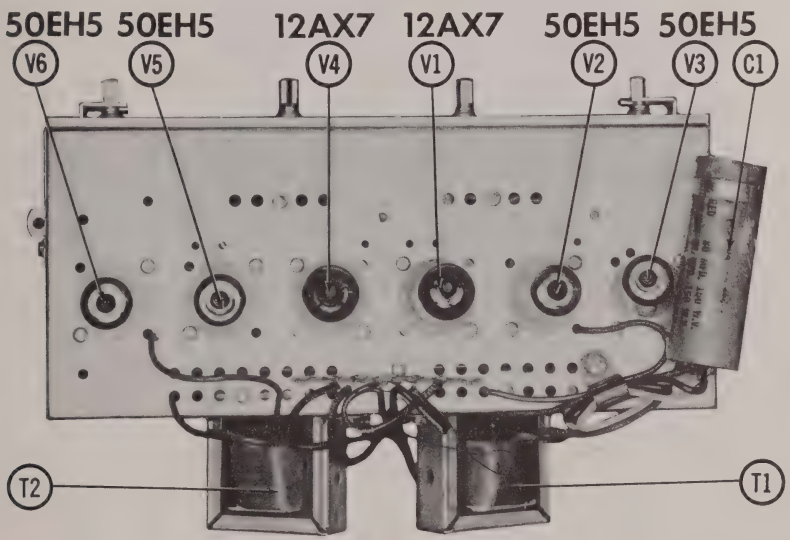
DECCA MODELS
DP-310, DP-311, DP-312



MODEL DP-310

TRADE NAME	Decca Models DP-310, DP-311, DP-312
MANUFACTURER	Decca Distributing Corp., 445 Park Ave., New York 22, N. Y.
TYPE SET	AC Operated 6 Tube Stereo Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 57 Watts, .52 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436
FOLDER 18 OR RECORD CHANGER MANUAL RC-12



DECCA MODELS
DP-310, DP-311, DP-312

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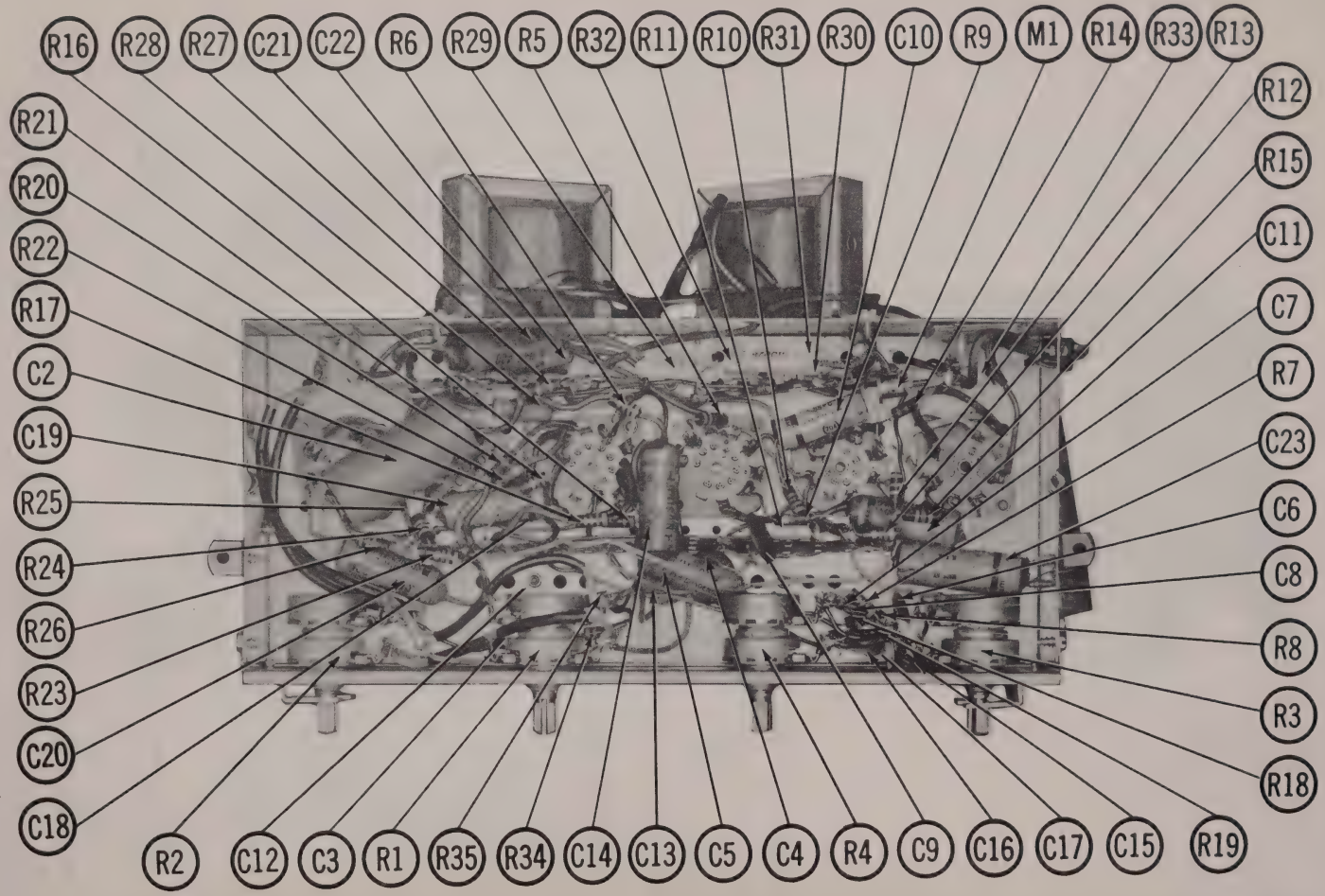


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Phase Inv.	12AX7	V4	Right Channel AF Amp. - Phase Inv.	12AX7
V2	Left Channel Output	50EH5	V5	Right Channel Output	50EH5
V3	Left Channel Output	50EH5	V6	Right Channel Output	50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DECCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	80	150		PR4-250	BBRQ0926.5	WQ410	TDLD-13	TVA-4708	
B	80	150					TD-20-150		
C	20	150							
C2	40	150		PRS1470	BR4015	TC48	TD-40-150	TVA-1413	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C6	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C8	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C11	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C12	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C15	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C16	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-503	GEM-4147	2TM-S47
C20	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-503	GEM-4147	2TM-S47
C21	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-503	GEM-4147	4TM-S47
C22	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-503	GEM-4147	4TM-S47
C23	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DECCA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K *	½	368067					Loudness, Left Channel
B	500K *	½						Loudness, Right Channel
R2A	3meg	½	368062				FA36A	Balance, Left Channel
B	3meg	½					RU36R	Balance, Right Channel
C	Shaft						CS3500	
R3A	5meg	½	368036	B-88	AD47-5meg-S		FA56A	Treble, Right Channel
B	5meg	½		SR-88	Not Req.		RU56A	Treble, Left Channel
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	5meg	½	368036	B-88	AD47-5meg-S		FA56A	Bass, Right Channel
B	5meg	½		SR-88	Not Req.		RU56A	Bass, Left Channel
C	Shaft			Not Req.	KSS-3		CS3500	

* Taps @ 165K & 330K.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	6.8meg	
R6	47K	(100K) *
R7	47K	
R8	27K	
R9	2.2meg	
R10	47K	
R11	2400Ω	(2200Ω) *
R12	47K	
R13	470K	
R14	33Ω	
R15	470K	

ITEM No.	RATING	REMARKS
R16	6.8meg	
R17	47K	(100K) *
R18	47K	
R19	27K	
R20	2.2meg	
R21	47K	
R22	2400Ω	(2200Ω) *
R23	47K	
R24	470K	
R25	33Ω	
R26	470K	

ITEM No.	RATING	REMARKS
R27	27K	
R28	470Ω 1W	
R29	50Ω 5W	IRC#PW5-50Ω
R30	50Ω 5W	Note 1 IRC#PW5-50Ω
R31	50Ω 5W	Note 1 IRC#PW5-50Ω
R32	50Ω 5W	IRC#PW5-50Ω
R33	50Ω 5W	IRC#PW5-50Ω
R34	47K	(100K) *
R35	47K	(100K) *

* Alternate Value.
Note 1. Not used in all versions.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DECCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	5400Ω CT	3-4Ω Tap Not Used	430583		A-3823			
T2	5400Ω CT	3-4Ω Tap Not Used	430583		A-3823			

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DECCA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	408001	8A21	
SP2	4"	PM	3-4Ω	404022	4A1	
SP3	8"	PM	3-4Ω	408001	8A21	
SP4	4"	PM	3-4Ω	404022	4A1	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA DECCA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.120A	*		1N1763 *	401I *	SR200 *	* Silicon Type

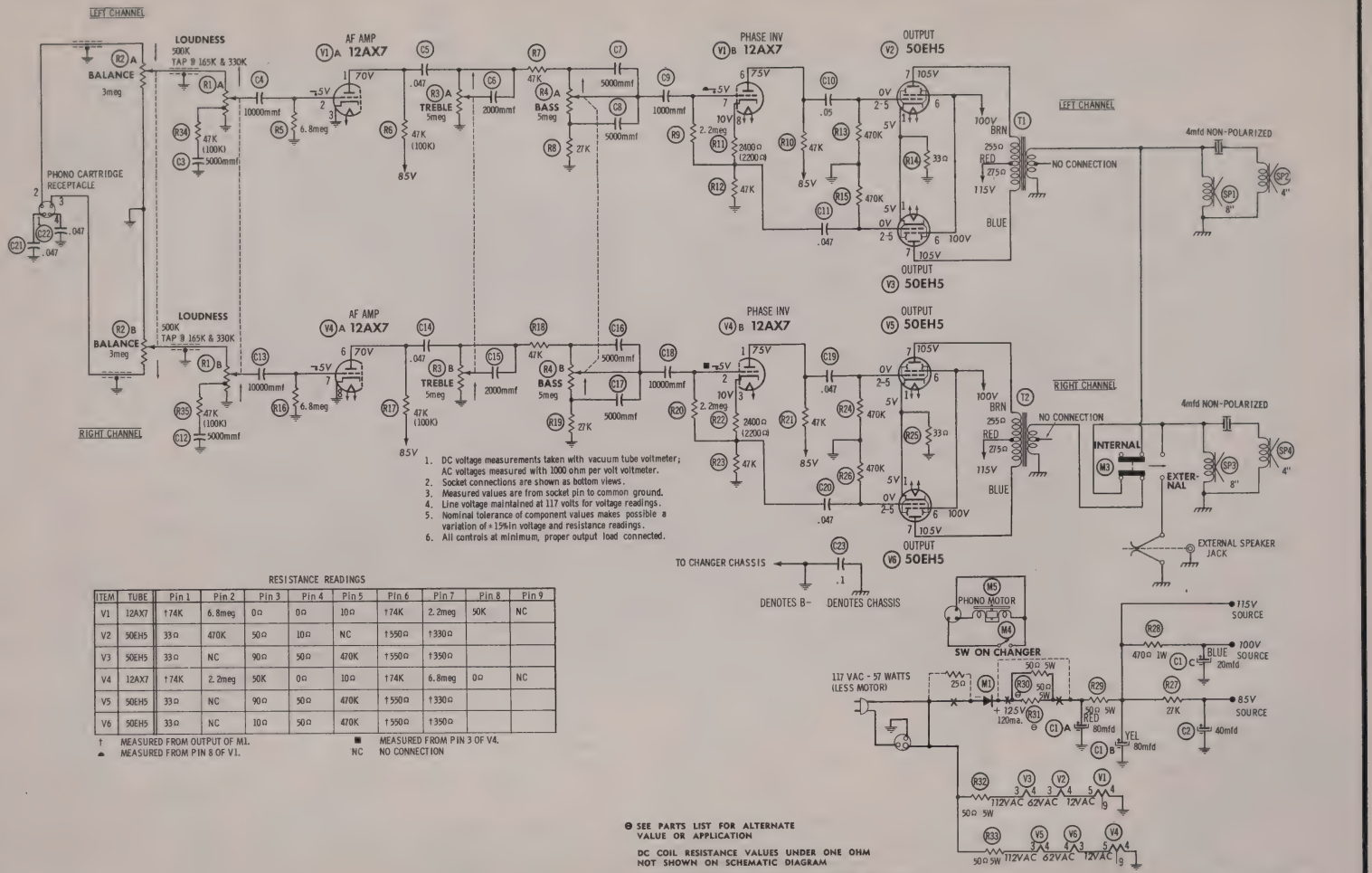
PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	DECCA PART No. CARTRIDGE	DECCA PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M2			13TB	Not Req.	26S	S1-1 * S3-3 *	10T2-S	Not Req.	

MISCELLANEOUS

ITEM No.	PART NAME	DECCA PART No.	NOTES
M3	Switch		Speaker Switch (DPDT Slide Type)
M4	Switch		Off-On (Part of Changer)
M5	Motor		Turntable Drive (Part of Changer)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†74K	6.8meg	0Ω	0Ω	10Ω	†74K	2.2meg	50K	NC
V2	50EH5	33Ω	470K	50Ω	10Ω	NC	†550Ω	†330Ω		
V3	50EH5	33Ω	NC	90Ω	50Ω	470K	†550Ω	†350Ω		
V4	12AX7	†74K	2.2meg	50K	0Ω	10Ω	†74K	6.8meg	0Ω	NC
V5	50EH5	33Ω	NC	90Ω	50Ω	470K	†550Ω	†330Ω		
V6	50EH5	33Ω	NC	10Ω	50Ω	470K	†550Ω	†350Ω		

† MEASURED FROM OUTPUT OF M1.
▲ MEASURED FROM PIN 8 OF V1.
■ MEASURED FROM PIN 3 OF V4.
NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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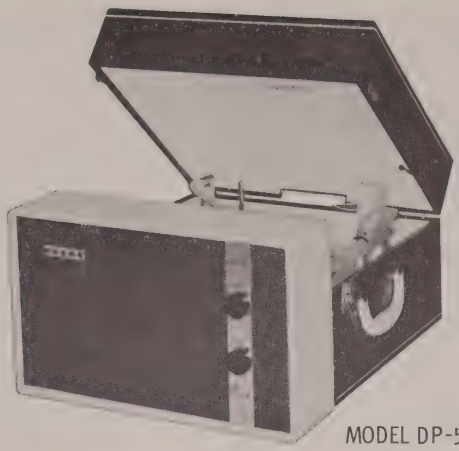
DECCA MODELS DP-310, DP-311, DP-312

PHOTOFACT® Folder

DECCA MODELS
DP-545, DP-547, DP-640

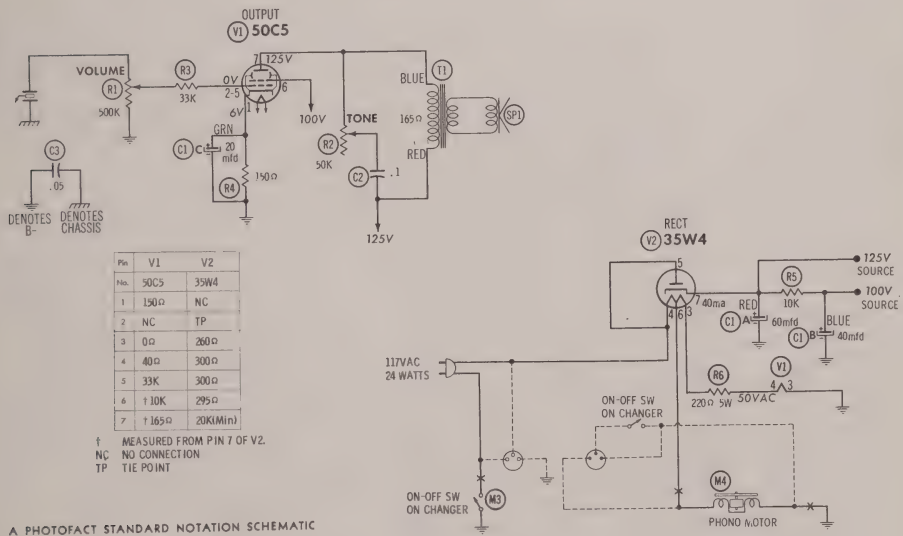
DECCA MODELS
DP-545, DP-547, DP-640



MODEL DP-547

TRADE NAME	Decca Models DP-545, DP-547, DP-640
MANUFACTURER	Decca Distributing Corp., 445 Park Ave., New York 22, N. Y.
TYPE SET	AC Operated 2 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	105-125 Volts AC, 60 Cycles RATING 24 Watts, .25 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR MONARCH UA8 - PHOTOFACT SET 381 FOLDER 11
OR RECORD CHANGER MANUAL RC-11



Pin No.	V1	V2
1	150Ω	NC
2	NC	TP
3	0Ω	260Ω
4	40Ω	300Ω
5	33K	300Ω
6	†10K	295Ω
7	†165Ω	20K(Min)

† MEASURED FROM PIN 7 OF V2.
NC NO CONNECTION
TP TIE POINT

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KS227

SET 509 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Output	50C5
V2	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DECCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	150		PRS3800	BBRT84215	TCT3119	TDLT-7	TVA-3455	
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C3	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DECCA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	VC-208	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	50K	½	VC-156	B-31	A47-50K-S	Q11-123	U35	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	33K	
R4	150K	
R5	10K	
R6	220Ω 5W	IRC #PW5-220Ω

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DECCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	3-4Ω	TR-109	A-3025	A-3332	24S53	S-12X	

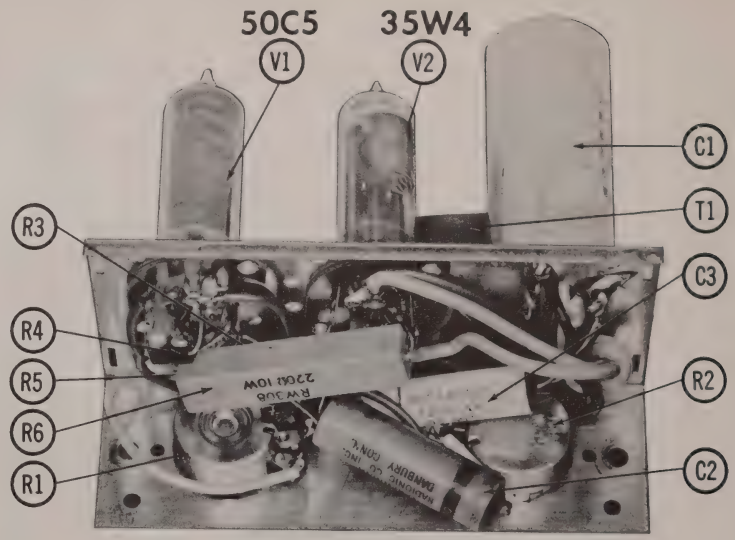
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DECCA PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	SP-401	4A1	

PHONO CARTRIDGE

ITEM No.	DECCA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M1		420-TS-TB	N8-1 N8-3	40T		49			

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA DECCA PART No.	REPLACEMENT DATA JENSEN PART No.	REMARKS
M2		CRA-55 † or CRA-55D ♦ and CRA-55X † or CRA-55XD ♦	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	DECCA PART No.	NOTES
M3	Switch		Off-On (Part of Player Mechanism)
M4	Motor		Turntable Drive (Part of Player Mechanism)

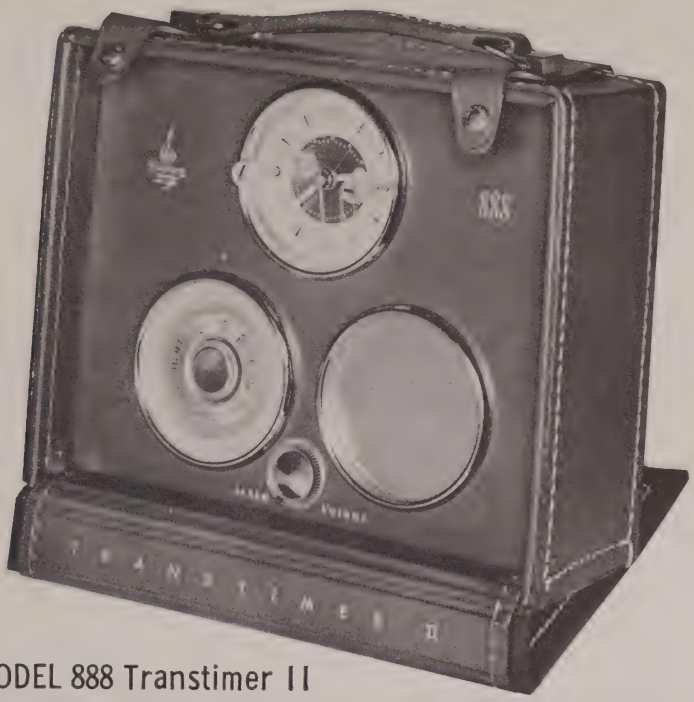
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

EMERSON MODELS 888 Transtimer, 888 Transtimer II (Ch. 120416, 120472)

EMERSON MODELS 888 Transtimer, 888 Transtimer II (Ch. 120416, 120472)



MODEL 888 Transtimer II

TRADE NAME	Emerson Models 888 Transtimer (Ch. 120416), 888 Transtimer II (Ch. 120472)		
MANUFACTURER	Emerson Radio & Phono Corp., 524 W. 23rd Street, New York 11, N. Y.		
TYPE SET	Battery Operated Transistorized Portable AM Receiver With Clock		
POWER SUPPLY	6 Volts DC (Radio)	RATING	8MA @ 6 Volts DC (No Signal, Min. Volume)
	1.5 Volts DC (Clock)		15MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	540 — 1650KC		

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A6...GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A5.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1650KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC Signal.	"	A5	"
4.	"	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang. Repeat Steps 3 and 4.

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DISASSEMBLY

RADIO

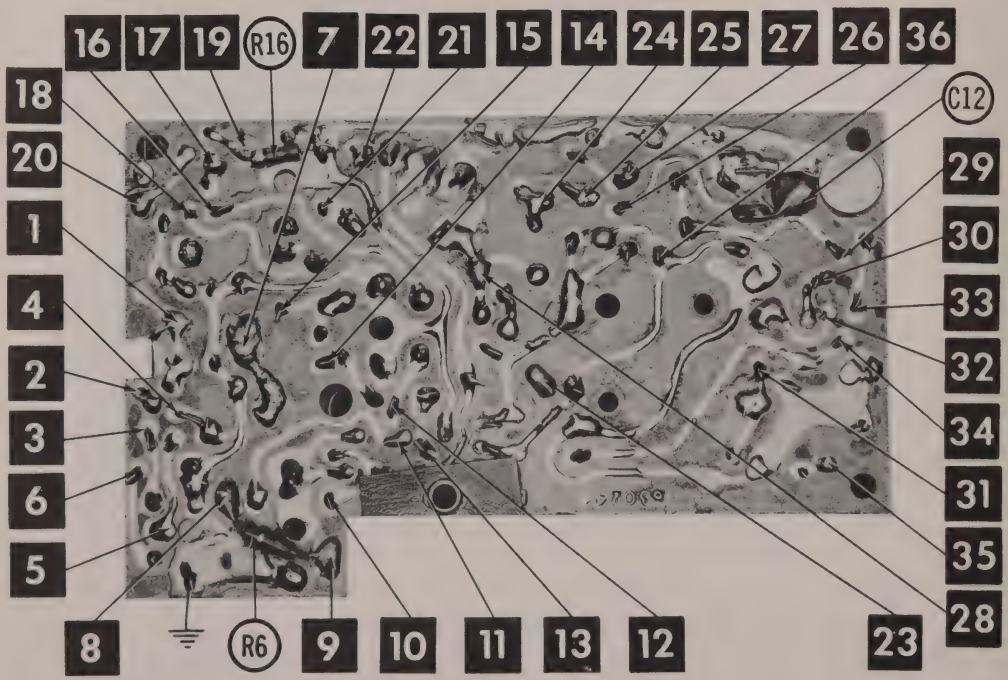
1. Open front flap.
2. Remove screw holding tuning knob. Remove knob.
3. Remove Phillips screw from left of tuning shaft.
4. Remove volume control knob.
5. Remove 2 screws from rear flap. Open flap.
6. Remove 2 hex nuts. Remove chassis.

CLOCK (Chassis 120416)

1. Remove clock battery.
2. Unsolder 2 leads from battery clip terminals.
3. Remove speednut from stud.
4. Remove clock. (Push gently toward front of case.)
5. To remove crystal, press down on back edges of bezel. Remove bezel and crystal.

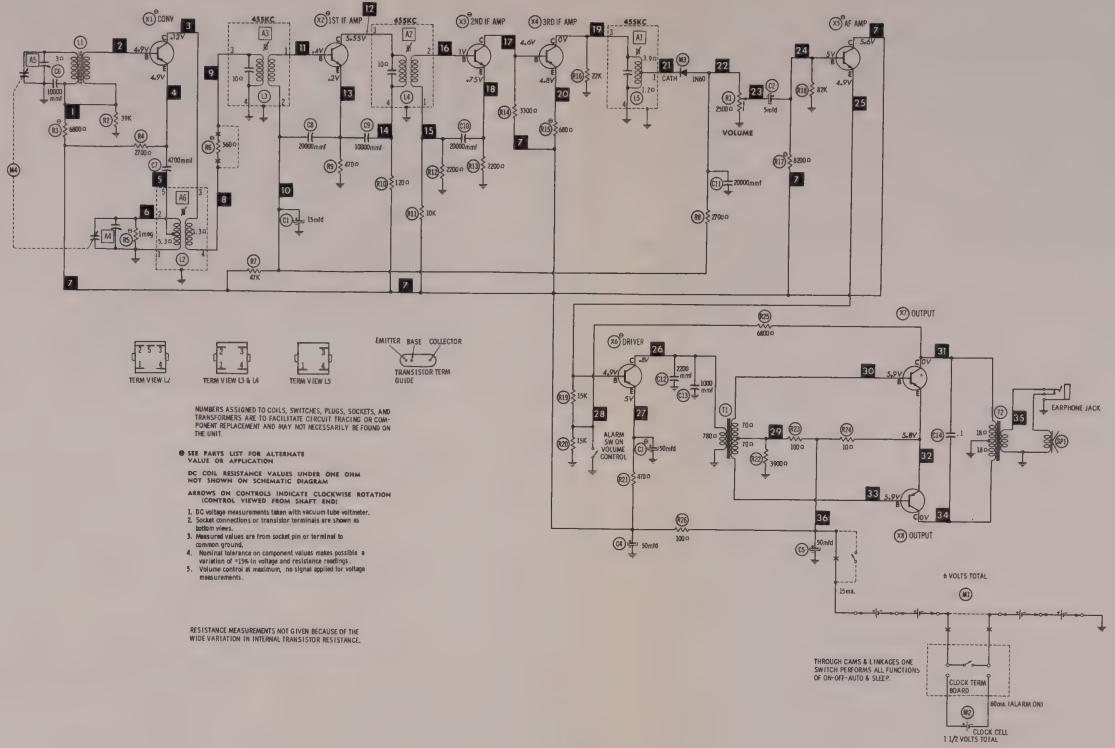
CLOCK (Chassis 120472)

1. Remove receiver chassis.
2. Remove 2 Tinnerman nuts holding face and bezel.
3. Remove 4 palnuts holding clock to cabinet.
4. Remove clock.



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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EMERSON MODELS 888 Transtimer, 888 Transtimer II (Ch. 120416, 120472)

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFGR. PART NO.	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	815025A ①	Converter		2N486		PNP
X2	815045D ②	1st IF Amplifier		2N1367		NPN
X3	815045D ③	2nd IF Amplifier		2N1367		NPN
X4	815027	3rd IF Amplifier		2N482		PNP
X5	815029 ④	AF Amplifier	2N649	2N363		NPN
X6	815034 ⑤	Driver	2N408	2N363		PNP
X7	815030	Output	2N408	2N633		PNP) Matched
X8	815030	Output	2N408	2N633		PNP) Pair

① Emerson Part #815025 may be used in this application.
② Emerson Part #815045, C; 815026, A, B, C, D, F may be used in this application.
③ Emerson Part #815045, B, E; 815026, A, B, D, E, F may be used in this application.
④ Emerson Part #815034, 815032, 815033, 815035, 815031, 815028 may be used in this application.
⑤ Emerson Part #815029 may be used in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	15	3	925419	PTT-3015	NLW15-6	TT6X15	ML15-25	TE-1053.5	
C2	5	10	925420	PTT-10005	NLW5-15	TT12X5	ML5-15	TE-1127	
C3	50	10	925422	XPP-10050	NLW50-10	TT10X50	ML50-15	TE-1119	①
C4	50	10	925422	XPP-10050	NLW50-10	TT10X50	ML50-15	TE-1119	
C5	50	10	925422	XPP-10050	NLW50-10	TT10X50	ML50-15	TE-1119	

① Some versions may use 45mfd in this application (Part #925421).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C8	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C11	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C12	2200		BPD-0022	DD-222	BYA10D2	CCD-222	B-222	5HK-D22
C13	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A B	2500Ω Switch	½	390494					Volume Alarm Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	39K	
R3	6800Ω	Note 1
R4	2700Ω	
R5	1meg	Note 2
R6	560Ω	Note 5
R7	47K	
R8	2700Ω	
R9	470Ω	
R10	120Ω	

ITEM No.	RATING	REMARKS
R11	10K	
R12	2200Ω	
R13	2200Ω	
R14	3300Ω	
R15	680Ω	Note 3
R16	22K	
R17	8200Ω	Note 4
R18	82K	
R19	15K	

ITEM No.	RATING	REMARKS
R20	15K	
R21	4700Ω	
R22	3900Ω	
R23	100Ω	
R24	10Ω	
R25	6800Ω	
R26	100Ω	

Note 1. R3 is 8200Ω when X1 is Part #815025.
Note 2. R5 is 680K when X1 is Part #815025, and R6 is omitted.
Note 3. R15 is 330Ω when X2 & X3 are Part #815026C.
Note 4. R17 is 4700Ω when X5 is Part #815032.
R17 is 6800Ω when X5 is Part #815033.
R17 is 10K when X5 is Part #815035.
Note 5. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	Loopstick	700139				
L2	Osc. Coil	716118				
L3	1st IF Trans.	720302				
L4	2nd IF Trans.	720302				
L5	3rd IF Trans.	720303				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO: PRI.	TURNS RATIO: SEC.	REPLACEMENT DATA: EMERSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.2	1	734157				T-51X①	① Use Original Mounting Frame.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	EMERSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	240Ω CT	3-4Ω	734158				TY-57X ①	① Use Original Mounting Frame

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	180175		

BATTERIES

ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V			130 *		635 *		M-14R*	* 4 Required (Radio)
M2	1½V					E9 †		ZM-9 †	† 1 Required, Mercury (Clock)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		EMERSON PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	1N60	817069	1N60	1N60	Detector

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M4	Tuning Cap.	900172	2 Gang
M5	Clock	471163	Model 888II, Ch. 120472 (Include Switch)
	Clock	471088	Model 888, Ch. 120416 (Include Switch)
	Printed Board	630225	Less All Components.

CABINETS & CABINET PARTS

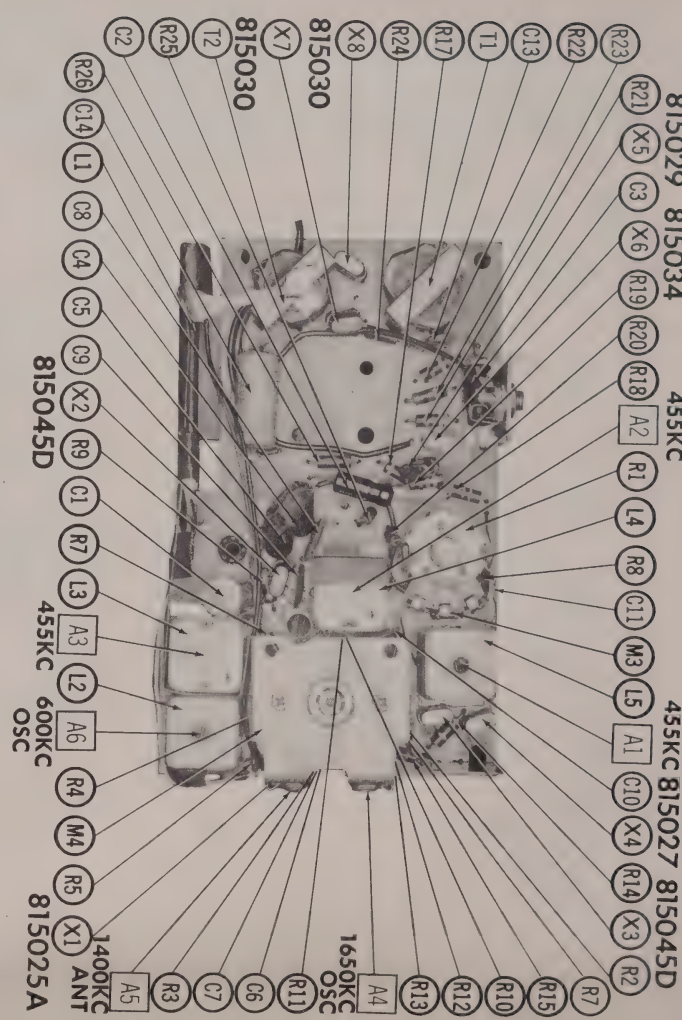
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	461026	Tuning
Knob	461146	Volume (Transtimer II)
Knob	461031	Volume (Transtimer)
Knob	461136	Clock
Crystal	520281	Clock (Transtimer II)
Crystal	962322	Clock (Transtimer)
Cabinet	141022	Leather, Black (Transtimer II)
Cabinet	141022A	Leather, Tan (Transtimer II)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

GARRARD
MODEL 210

GARRARD
MODEL 210

GARRARD
MODEL 210

GENERAL INFORMATION

The Garrard Model 210 is a four-speed record player and changer and is designed to play a stack of eight records in automatic sequence and shut off after the last record is played. Ten and twelve-inch records can be intermixed providing they are of the same speed.

The velocity trip mechanism is used for changing records.

A 45 rpm spindle or center hole adaptors are available for 7" 45 rpm records.

Connect this changer to an outlet supplying 117 volts, 60 cycles AC only.

Manufactured By:

The Garrard Engineering and Manufacturing Co. Ltd.
Swindon - Wiltshire - England

Distributed in the United States By:
Garrard Sales Corporation
80 Shore Road
Port Washington, New York

SET 509 FOLDER 12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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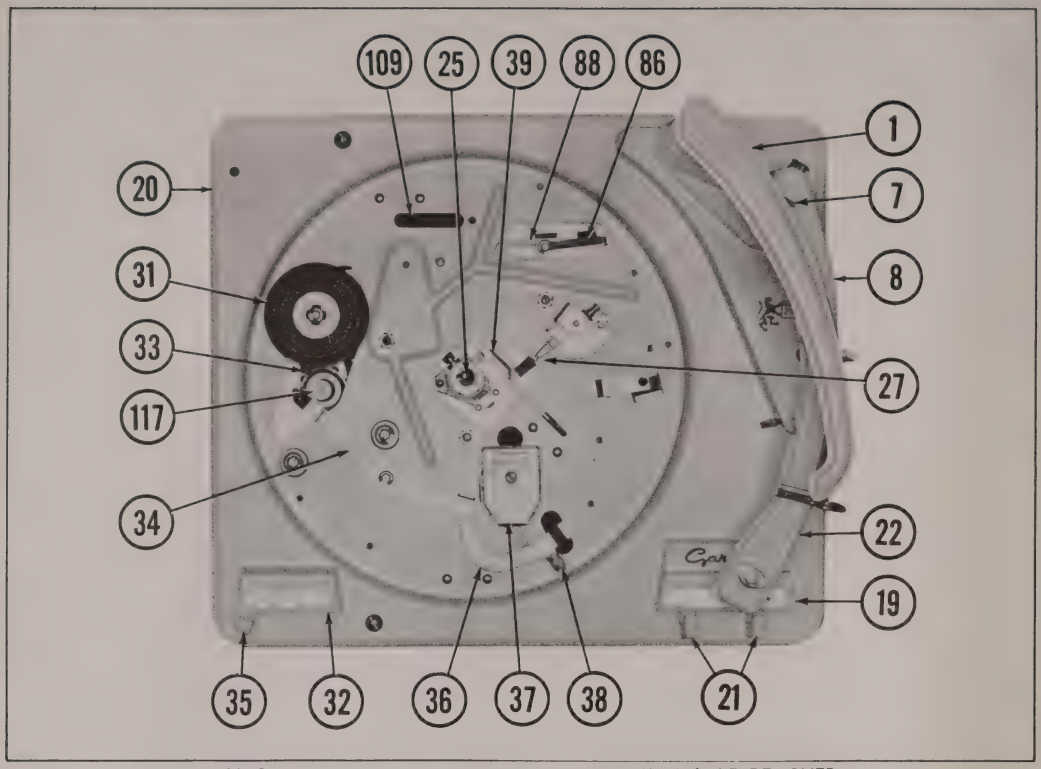


FIG.1 TOP VIEW OF MECHANISM WITH TURNTABLE REMOVED

CONTROLS

Manual On-Off Control

Turning this control to the "On" position releases the turntable brake and applies power to the motor. Returning this control to the "Off" position, removes the power to the motor and applies the brake to the turntable.

Automatic Control

Turning this control to the "On-Reject" position releases the turntable brake, applies power to the motor, and causes the changer to go through a change cycle. The record selector arm will then swing in and feel the record so the tone arm will set down in the lead-in groove of the record. Returning this control to the "Off" position removes the power to the motor and applies the brake to the turntable.

Speed Change

This control selects the correct speed for the record or records being played.

OPERATING INSTRUCTIONS

Loading

1. Raise overarm (1) and move it to the right.
2. Load up to eight 10 or 12" records with a 1/4" center hole onto the spindle.
3. Place overarm (1) over the records.

NOTE : 10 and 12-inch records of the same speed can be intermixed.

Automatic Play

1. Set the speed selector to the type records to be played.
2. Turn the "Off-On-Reject" control to the "On-

Reject" position and release. The records will play automatically and the mechanism will shut off after the last record is played.

Manual Play

1. Set speed selector for type record to be played.
2. Place a record on the turntable.
3. Turn the manual "Off-On" control to the "On" position.
4. Place tone arm on the record.
5. The tone arm will return to its rest and the power to the motor will shut off after the record is played.

ADJUSTMENTS

Set-Down

Turn screw (13) clockwise to move tone arm inward and counterclockwise to move tone arm outward.

Stylus Pressure

Turn serrated screw (7) clockwise to increase the pressure and counterclockwise to decrease the pressure. The stylus pressure should be adjusted to that recommended by the manufacturer.

Tone Arm Height

To adjust the tone arm height, turn screw (11) clockwise to raise the tone arm and counterclockwise to lower the tone arm. It should be adjusted so the stylus point is 1" above the turntable as the tone arm returns to its rest position.

CHANGE CYCLE

Observe the change cycle by manually rotating the turntable clockwise. The action to be described can then be readily followed and each part's function more easily understood.

This changer has a velocity trip mechanism. The change cycle is started by the fast inward motion of the pickup arm when the needle enters the leadout groove at the end of a record.

As the pickup arm enters the leadout groove of a record, pickup arm lever assembly (8) strikes inter lever unit (78). Friction plate (28) rotates and moves operating lever unit (27) so it will contact and ride up on the turntable cam, raising stop lever assembly (39) so cam gear assembly (84) will engage the turntable gear.

As cam gear assembly (84) rotates, cam lever unit (85) rides on the bottom cam of cam gear assembly (84) and moves the pickup arm lever assembly (8) outward so the pickup arm will clear the records. Release lever assembly (101) is actuated as cam gear assembly (84) continues its rotation. In turn, release lever assembly (101) actuates the cam in the spindle (25) which drops one record onto the turntable.

As a record drops and cam gear assembly (84) continues its rotation, record cam (2) swings inward and contacts the edge of the record by action of the cam selector lever unit (91) riding on a pin on cam gear assembly (84).

At the same time, the pickup arm is raised by action of pickup cam assembly (56). As the pickup arm is raised and swings outward, a pin on pickup arm lever assembly (8) engages with control lever unit (43). The pickup arm is then pulled in against selector lever assembly by inter selector lever spring (49). As cam gear assembly (84) continues its rotation, pickup cam assembly (56) is rotated far enough so pickup arm lever assembly (8) disengages inter selector lever and the pickup arm sets down in the lead-in groove of the record.

The cam gear assembly (84) continues to rotate until it contacts stop lever assembly (39) and one cycle is completed.

When the last record has been played, the record cam (2) swings all the way in. When the record cam (2) swings in, it allows stop link (58) to move outward and the inter selector lever is prevented from moving in by the lance on stop link (58). As cam gear assembly (84) continues its rotation, cam lever (85) is rotated by a pin on cam gear assembly (84) which in turn pivots catch lever (79) and releases switch lever assembly (36), cutting the power to the motor.

CLEANING

Clean all foreign matter from the turntable rim. Clean the idler wheel and motor pulley occasionally to remove any oil or grease from them to prevent slipping.

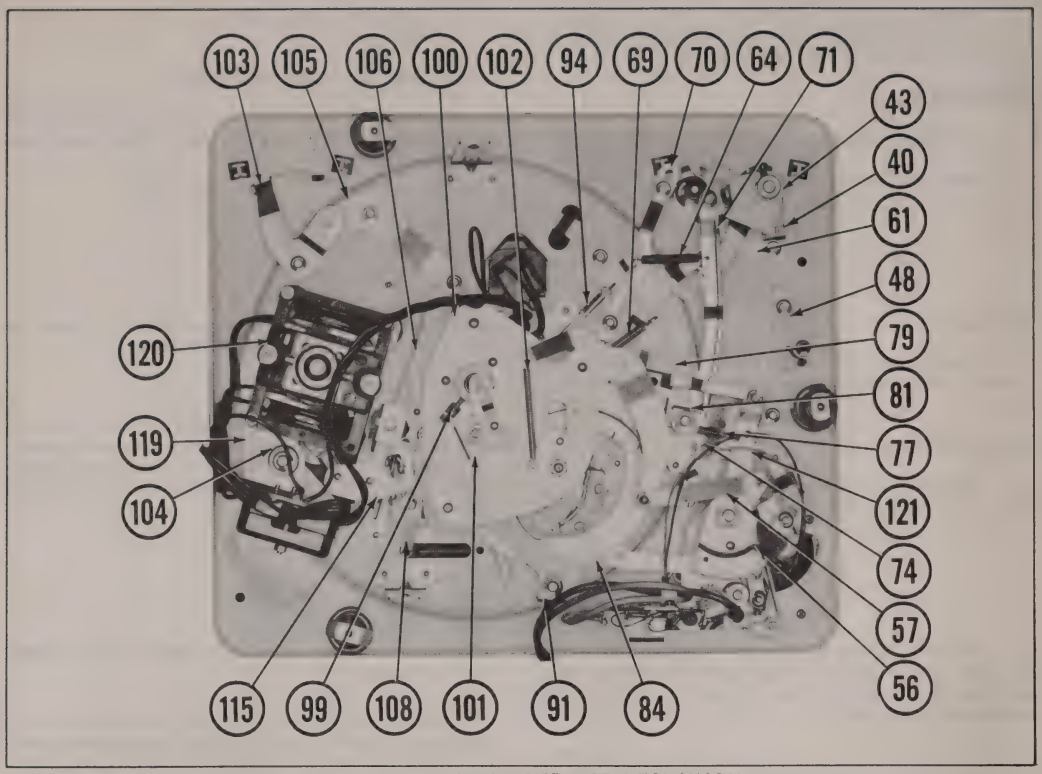


FIG.2 BOTTOM VIEW OF MECHANISM

LUBRICATION

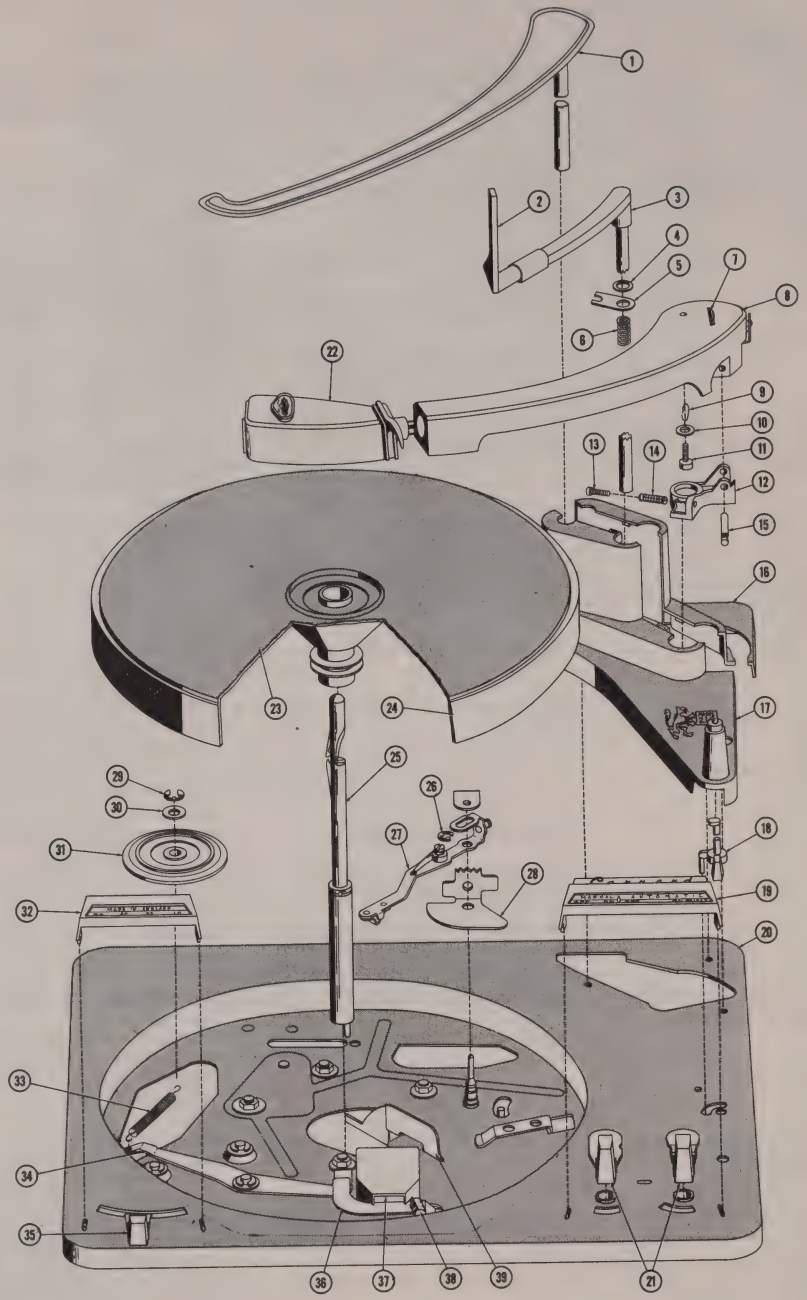
Motor bearings, turntable spindle, and idler wheel are of the oil retaining type and should need no oiling for a long period of time. When the need for oil is apparent, use it very sparingly.

Apply a light coat of grease to all cam faces, pins and rollers, and all lever pivots.

TROUBLE CHART

Symptom	Cause	Remedy
Changer does not cycle when tone arm reaches the center of record.	1. No run out groove in record. 2. Pitch of record run out groove not sufficient. 3. Automatic trip operating lever (27) height incorrect.	1. Trip mechanism with the reject control. 2. The run out groove of the record. should not be less than 3/32". 3. Turn adjusting screw to raise or lower the automatic trip operating lever (27) so the bottom face of the felt pad engages approxi - mately half way up the cam face on the turntable striker as it revolves.

Symptom	Cause	Remedy
	4. Automatic trip operating lever (27) binding.	4. Lift automatic trip operating lever (27) off the friction plate to see if it is free on its pivot. Do not lubricate.
When tone arm nears center of record, it repeats in record groove.	1. Stylus worn. 2. Stylus pressure too light. 3. Stylus leads too tight or in wrong position. 4. Automatic trip operating lever (27) set incorrectly. 5. Automatic trip operating lever (27) and tone arm binding.	1. Replace stylus. 2. Adjust stylus pressure to that recommended by the manufacturer. 3. Make sure the leads move freely in the slot of the tone arm base. 4. Make sure automatic trip operating lever (27) is free on its pivot. 5. Check all associated levers for stiffness and see if they are not obstructed by any leads.
Turntable runs excessively fast or slow.	1. Motor pulley size incorrect. 2. Incorrect stroboscope being used.	1. Check for correct pulley size. 50-cycle motor pulley is nickel plated and 60-cycle motor pulley is brass. 2. Check to see if stroboscope being used is correct for the frequency of the power supply.
Erratic turntable speed.	1. Oil on driving surfaces. 2. Motor pulley (117) loose. 3. Motor pulley (117) out of position.	1. Make sure all driving surfaces are free of oil. 2. Make sure motor pulley (117) is in correct position and then tighten both set screws. 3. Position motor pulley (117) so the idler wheel (31) is about 1/64" above the adjacent pulley step.
Wow	1. Dirt on inside of turntable rim. 2. Turntable spindle tight. 3. Flat spots on idler wheel (31). 4. Motor pulley (117) loose. 5. Bent motor shaft or unbalanced rotor.	1. Remove turntable and clean turntable rim. 2. Remove turntable and clean and lubricate spindle. 3. Replace idler wheel (31). 4. Tighten the two set screws in motor pulley. 5. Replace the rotor and shaft assembly.
Turntable does not revolve when motor is running.	1. Oil on driving surfaces. 2. Inter speed lever unit (105) binding.	1. Clean all driving surfaces so they are free of oil. 2. Check to see if motor leads are not touching the inter speed lever unit (105) and put a drop of oil on the bracket pivot.
Fails to turn off when last record has played.	1. K. O. lever unit (121) sticking. 2. Levers out of position. 3. Incorrect selector arm (3) setting.	1. Clean and lubricate K. O. lever unit (121). 2. If any lever is bent, remove it and bend to correct position. 3. Place a 10" record on the spindle and turn the changer on with the "On-Reject" control. As soon as the record drops and the selector arm moves outward, turn the changer off with the manual off control. Move selector arm outward until a spring resistance is felt. The plastic cam should be 6 1/8" to 6 3/16" radius from the center of the record spindle. Adjust the adjusting screw, in the



A PHOTOFACT "EXPLODED" VIEW
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FIG.3A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

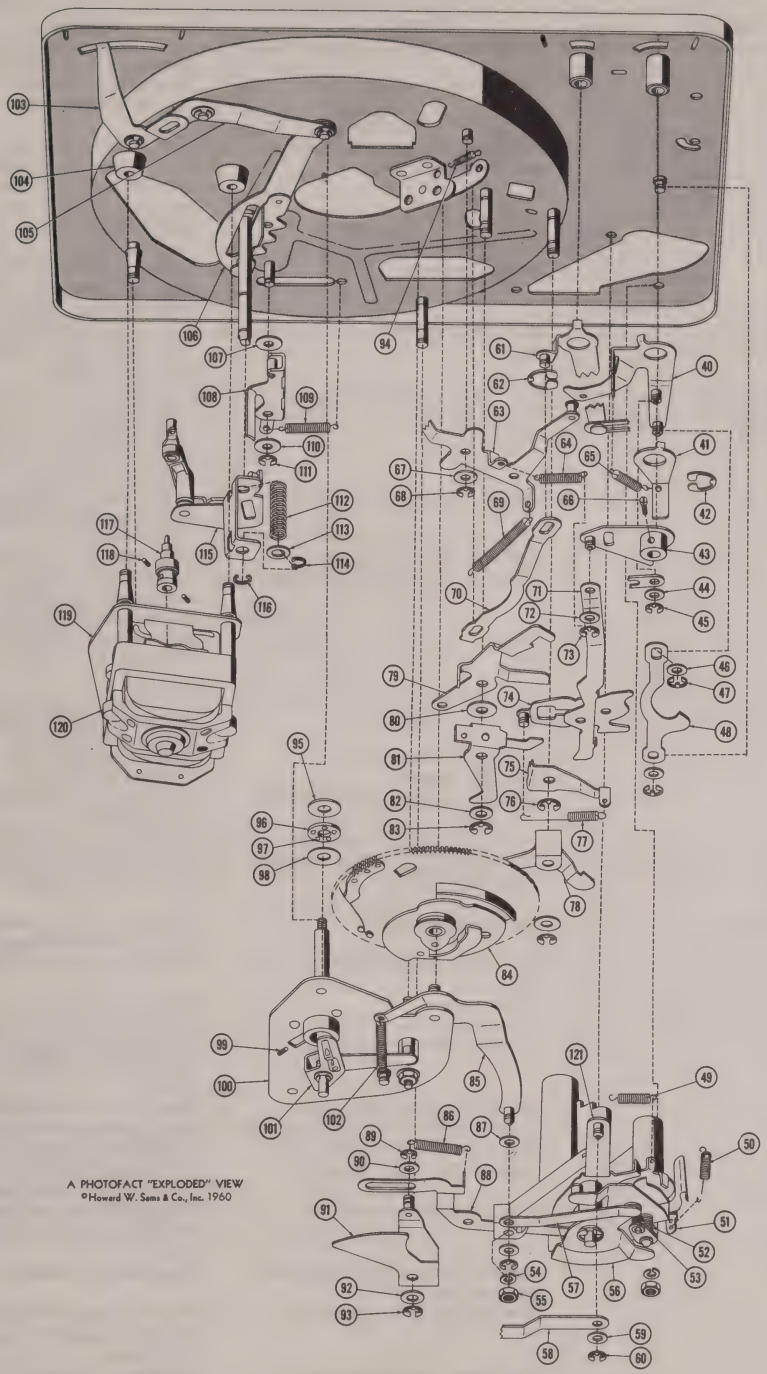

FIG.3B EXPLODED VIEW OF PARTS BELOW BASEPLATE

Symptom	Cause	Remedy
		rear cover, a small amount in one direction or the other while holding the selector arm in this position.
	4. Excessive gap between overarm and record spindle.	4. Remove the cover on the tone arm base, loosen the bracket retaining screws and move overarm in until there is 1/8" gap between it and the spindle.
	5. Levers rubbing.	5. Bend levers so they are not rubbing and lubricate the selector arm pivot with light oil.
	6. Excessive friction on stop link (58).	6. Turn adjusting screw on K. O. lever unit (121) a small amount to reduce friction.
Changer turns off without playing record.	1. Record cam (2) not in vertical position.	1. Record selector arm is in a horizontal position for shipping purposes and must be positioned in a vertical position.
	2. Control knob not free.	2. Lubricate the pivot points and where the levers slide.
Tone arm lands too far in or out.	1. Tone arm out of adjustment.	1. See "Set-Down Adjustment".
	2. Broken or disconnected springs.	2. Check to see if all springs are connected to their levers or replace if necessary.
	3. Selector arm (3) out of adjustment.	3. See remedy 3 under "Fails to turn off when last record has played."
Records do not drop.	1. Overarm (1) tight.	1. Clean the overarm shaft and lubricate with light oil.
	2. Spindle (25) damaged.	2. Replace spindle (25).
	3. Records warped.	3. Replace records.
	4. Burrs in center hole of record.	4. Remove burrs from center hole with penknife.
Two records drop at the same time.	1. Record latch in record spindle unit (25) sticking.	1. Clean record latch so it will move up and down freely.
Mechanical noise.	1. Lack of lubrication.	1. Lubricate all bearings, cam faces, and operating pins.
	2. Flat spots on idler wheel unit (31).	2. Replace idler wheel unit (31).
	3. Lever loose.	3. Check all levers for tightness.
Rumble.	1. Lack of lubrication.	1. Lubricate turntable bearings, idler wheel unit (31), and motor (120).
	2. Defective motor mountings.	2. Replace motor mountings (104).
	3. Motor power supply leads preventing motor from floating freely on its mountings.	3. Make sure power supply leads to motor have plenty slack and are not caught between the motor mounting plate and baseplate.
	4. Dirty idler wheel unit (31).	4. Lightly scrape the surface of idler wheel unit (31) to remove all dirt.
	5. Rubber tire of idler wheel unit (31) worn out.	5. Replace idler wheel unit (31).
	6. Motor pulley (117) out of position.	6. Make sure the idler wheel unit (31) is riding squarely on the pulley (117) steps.
	7. Idler wheel tension spring (33) too strong.	7. Stretch or replace idler wheel tension spring (33).
	8. Rotor shaft bent or motor pulley (117) defective.	8. Replace the rotor or motor pulley (117).

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
Motor will not run.	1. No power reaching motor (120). 2. Loose connection. 3. Switch contacts bad. 4. Defective motor coils.	1. Check power leads for openings. 2. Inspect wiring connections to motor. 3. Replace switch. 4. When connected for high voltage, the total resistance should be 780 ohms. When connected for low voltage range, the total resistance should be 195 ohms.
Motor runs slow.	1. Motor bearings need lubrication. 2. Motor bearings out of alignment. 3. Polarity of motor coils incorrect. 4. Motor coil opens.	1. Lubricate motor bearings with fine machine oil. 2. Give the motor a sharp blow with a piece of wood and self-aligning bearings will line up and free the motor shaft. 3. The polarity of the poles on which the coils are assembled should be the same, both north or both south. 4. Replace motor coil.
Motor runs hot.	1. Motor coil shorted. 2. Incorrect voltage. 3. Defective insulation.	1. Replace motor coil. 2. Be sure the motor coils are connected for the correct power supply. 3. Replace motor coils.
Tone arm lands on record and jumps first few grooves.	1. Stylus worn or wrong size. 2. Changer not level. 3. Pickup leads binding tone arm.	1. Make sure stylus is set for type records being played. If stylus is worn or damaged, replace. 2. Level changer. 3. Make sure the pickup leads are free in the slot in unit plate at rear of pickup arm base and have enough loop in the leads so the movement of the tone arm is not restricted.
Tone arm does not lower onto record.	1. Stylus pressure too light. 2. Tone arm pivot tight. 3. Lack of lubrication.	1. Adjust stylus pressure to that recommended by the manufacturer. 2. Clean tone arm pivot and lubricate. 3. Put one drop of thin oil on pickup lifting rod and move it up and down. Put a little thick grease on pickup cam ass'y. (56).
Tone arm begins to lower then swings inward.	1. Lack of lubrication. 2. Excessive play in pickup arm vertical pivot.	1. Grease the face of pickup cam assembly (56) and oil the roller riveted to it. 2. Loosen the screw in the U-shaped lever under the pivot and move it upward and retighten the screw. Make sure the tone arm moves freely after making any adjustments.

Ref. No.	Part No.	Description
1	B. 56406	Overarm Assembly
2	A. 56710	Record Cam
3	A. 56417	Selector Arm Assembly
4	A. 40777	Presspahn Washer
5	A. 40859	Tab Washer
6	A. 41869	Spring
7		Serrated Screw
8	B. 57250	Pickup Arm Assembly
9		Lock Spring for Height Adjusting Screw
10		Washer
11		Height Adjusting Screw
12	A. 56357	Pivot Bracket
13		Set Down Adjusting Screw
14		Tension Spring
15	A. 54734	Pivot Spindle
16	C. 56451	Pickup Base Cover (Rear)
17	C. 56450	Pickup Base Cover (Front)
18	A. 56965	Latch
19	A. 56317	Control Cover Front
20	C. 56303	Baseplate
21	B. 56393	Knob
22	A. 56804	Pickup Head MPM5 (Closed Front)
	A. 56802	Pickup Head MPM5 (Open Front)
23	C. 54848/B	Turntable Mat
24	B. 53394	Turntable Unit
25	B. 54638	Record Spindle Unit
26	A. 41723	Spring Clip
27	A. 56616	Operating Lever Unit
28	A. 56373	Friction Plate
29	A. 41723	Spring Clip
30	A. 40773	Washer
31*	B. 53883*	*Idler Wheel Unit
32	A. 56318	Speed Cover Unit
33	A. 41792	Idler Wheel Tension Spring
34	A. 56368	Tension Lever
35	B. 56316	Knob
36	B. 56350	Switch Lever Ass'y.
37	B. 51322	Switch Block
38	A. 45064	Brake Pad
39	A. 56374	Stop Lever Ass'y.
40	A. 56331	Return Lever
41		Start Lever
42		Spring Clip
43	A. 56322	Control Lever Unit
44		Washer
45		Spring Clip
46	A. 40537	Washer
47	A. 41723	Spring Clip
48	B. 56439	Latch Release Lever
49	A. 41506	Inter Selector Lever Spring
50	A. 41853	Pickup Arm Counterbalance Spring
51	A. 56642	Anchor Bracket
52	A. 41833	Friction Spring
53	A. 41796	Return Spring
54		Lock Washer
55		Hex Nut
56	A. 56584	Pickup Cam Ass'y.
57	A. 56513	Cam Link Unit
58	A. 54662	Stop Link
59	A. 40537	Washer
60	A. 41723	Spring Clip
61		Manual Control Lever
62		Spring Clip
63	B. 56350	Switch Lever Ass'y.
64	A. 41631	Control Link Spring
65	A. 41630	Start and Return Lever Spring
66	A. 44076	Control Lever Unit Screw
67	A. 40695	Shim Washer
68	A. 41723	Spring Clip
69	A. 41503	Stop Cam Lever Spring
70	A. 56380	Switch Link
71	A. 56329	Control Link
72	A. 40695	Shim Washer
73	A. 41723	Spring Clip
74	A. 56627	Stop Catch Lever Unit
75	A. 56359	Fixing Plate
76	A. 43800	Stop Catch Lever Spring Clip
77	A. 41845	Spring
78	A. 56376	Inter Lever Unit
79	B. 56332	Catch Lever
80	A. 40836	Separating Washer
81	B. 56625	Stop Cam Lever
82	A. 40864	Washer
83	A. 43800	Spring Clip
84	B. 56388	Cam Gear Ass'y.
85	A. 56334	Cam Lever Unit
86	A. 41848	Selector Spring
87		Shim Washer
88	A. 56401	Selector Link
89	A. 43800	Spring Clip
90	A. 40795	Shim Washer
91	A. 56425	Cam Selector Lever Unit
92	A. 40759	Washer
93	A. 43800	Spring Clip
94	A. 41759	Stop Lever Ass'y. Spring
95	A. 40789	Thrust Washer
96	A. 51224	Ball Race Cage
97	A. 43201	Ball Bearings (5)
98	A. 40804	Thrust Washer
99	A. 40155	Lower Set Screw
	A. 40488	Upper Set Screw (Not Shown)
100	C. 56362	Bridge Sub Ass'y.
101	A. 54656	Release Lever Ass'y.
102	A. 41852	Cam Lever Spring
103	A. 56315	Speed Lever
104	A. 43123	Motor Mount
105	A. 56312	Inter Speed Lever Unit
106	B. 56309	Speed Cam Lever Unit
107	A. 40695	Washer
108	A. 56306	Index Lever Unit
109	A. 41630	Index Lever Spring
110	A. 40695	Washer
111	A. 41723	Circlip
112	A. 41841	Lifting Spring

MECHANICAL PARTS LIST (CON'T.)

Ref. No.	Part No.	Description
113	A. 40867	Lifting Spring Washer
114	A. 41723	Spring Clip
115	A. 56453	Support Lever Ass'y.
116	A. 43813	Spring Clip
117	A. 55644	60 Cycle Pulley
	A. 55643	50 Cycle Pulley
118	A. 44052	Pulley Set Screws
119	B. 56445	Motor Plate
120	B. 56440	Dual Range Motor
121	A. 56342	K. O. Lever Unit

* Idler Wheel Unit Walsco
Part No. 1479

PHOTOFACT® Folder

MOTOROLA
MODEL OEA60X

TRADE NAME	Motorola Model OEA60X (For 1960 Oldsmobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 4 Tube, 2 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery
TUNING RANGE—BROADCAST	540 — 1610KC RATING 1.3 Amp. @ 12.6 Volts DC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7.... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A8, A9, A10.....GENERAL CEMENT #9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	262.5KC (400∿ Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	Step 3 is not necessary unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores 7/16" out of coils. Repeat Step. 2.					
3.	Thru dummy (Fig. 1) to antenna receptacle.	1200KC	Tuner carriage 9/32" from high end stop.	Across voice coil.	A8, A9, A10	Adjust for maximum output. Repeat Step 2.
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

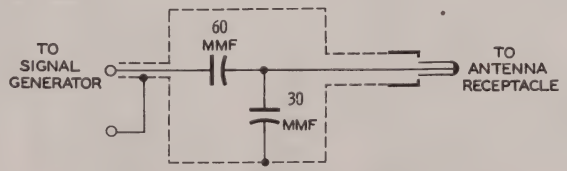

FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KT238

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MOTOROLA
MODEL OEA60X

MOTOROLA
MODEL OEA60X

SET 509 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BL6	V3	IF Amplifier	12BL6
V2	Converter	12AD6	V4	Det. -AVC-AF Amp.	12F8

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	MN-53 *	Driver	2N591 *	MN-53	2N591	PNP
X2	2N176	Output	2N176		2N176	PNP Note 1

* Alternate Type 2N652.

Note 1. When replacing, apply DC-4 grease (Part #11M490487) or equivalent, to both sides of insulator. Tighten mounting screws securely. Check bias adjustment.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■500	16	23B543279	AFH3-00-95		WP300.85		TVLS-3026.8*	
	▲500	16							
	100	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

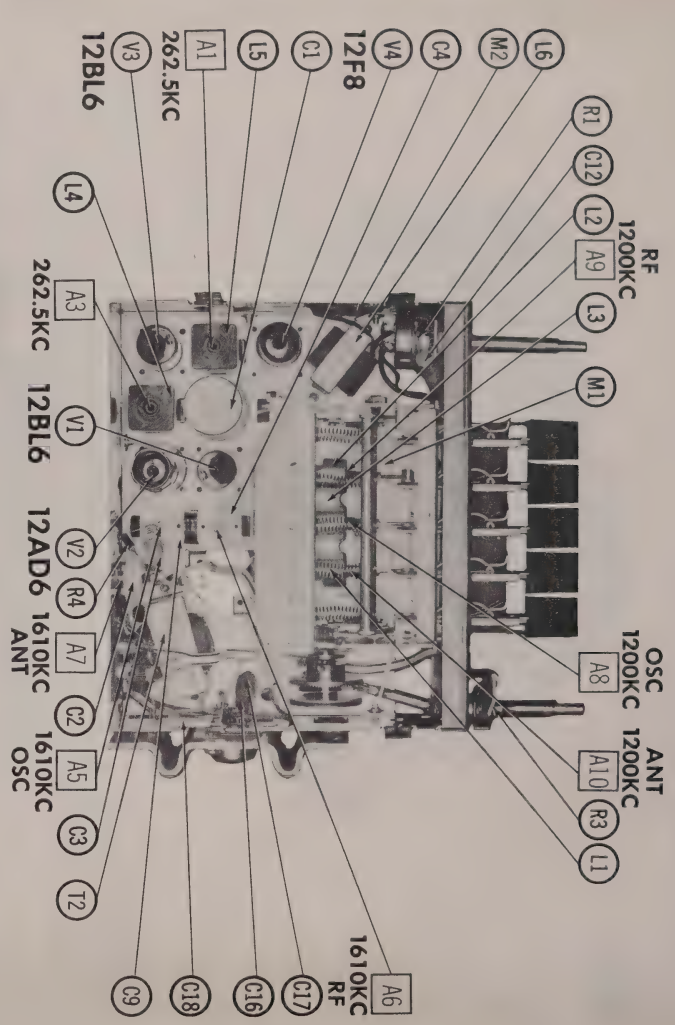
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	40-430	#20K542441						
C3	.002 1000V 10%				DPMS16D2	16DP-2-202	GP220	10TM-D20
C4	20-120	#20K541014				424		
C5	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C6	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C7	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C8	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C9	310-390	#20K541700						
C10	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C11	27 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C12	.005 400V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D5
C13	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-S10
C14	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-S10
C15	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-S10
C16	25000				DPMS8S25	4DP-2-253	GEM-4125	4TM-S25
C17	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	5HK-S10
C18A	3000		1467-003		1W5D3	CM-20B-302M	MC461	1FM-23
B	3000		1467-003		1W5D3	CM-20B-302M	MC461	1FM-23

\# Motorola Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	18C544280	F1-68				Tone
B	2meg	½		R2-75	RTV-713C	† QJ-1293A	■ UE4163-S	Volume
	1meg Tap							
C	Switch			KR-4				Power Off-On
R2	300Ω	2(WW)	18K543493		39-300 *	112-300 *	FL500 *	Bias
	36Ω Stop							

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R3	15Ω	2(WW)	18K544295					Speaker Fader

† "CONCENTRIKIT" equivalent: K-15 Kit with base elements and shafts: B13-139, P17-120 (Panel) B18-139X, R1-200 (Rear) 76-1 (Switch)

■ "STA-LOC" equivalent: FB26A, RU26T16, OS1562A, IS2125, US41

* Use 39Ω series resistor.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	22K	
R5	22meg	
R6	3300Ω	
R7	1meg	
R8	47K	
R9	2.7meg	
R10	91meg	

ITEM No.	RATING	REMARKS
R11	4.7meg	
R12	3.3meg	
R13	47K	
R14	3.3meg	
R15	3300Ω	
R16	100Ω	
R17	22K	

ITEM No.	RATING	REMARKS
R18	820Ω	
R19	10K	
R20	10Ω (Cold)	Pt. #6K543800
R21	10Ω	
R22	330Ω	
R23	330Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant. Coil	24C535458				
L2	RF Coil	24C535458				
L3	Osc. Coil	24C535456				
L4	Input IF Trans.	24B543286	BC-350	12-H1	RTC-8638	
L5	Output IF Trans.	24K543287	BC-354	12-H6	RTC-8640	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L6	1.3A	.56Ω	10.6MH	25B537543E①					①Alternate Part #25B537543.

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	20	1	25K543619					

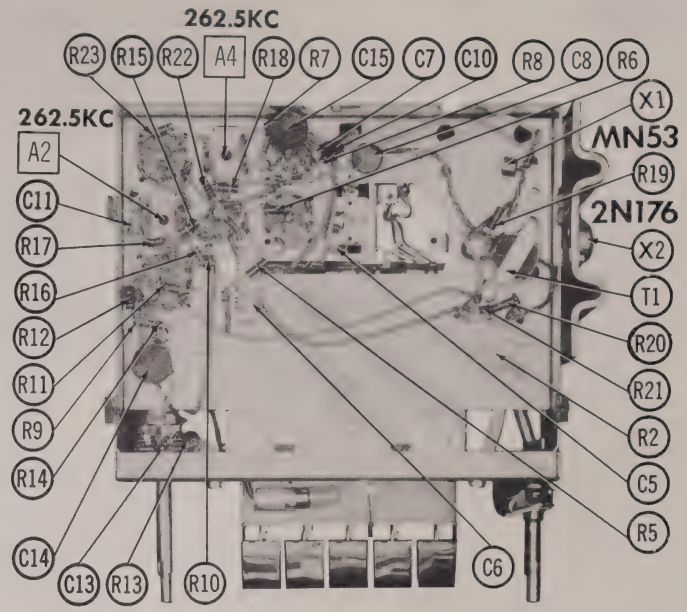
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	9Ω Tap ⓐ 3-4Ω	25C542489A①					① Alternate Part #25C542489.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6"x 9"	PM	3-4Ω	50D544291		

CHASSIS—BOTTOM VIEW



MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuner	77D562548	(AT-281) Complete, less Pushbutton & Pointer
M2	Spark Plate	64K530177	

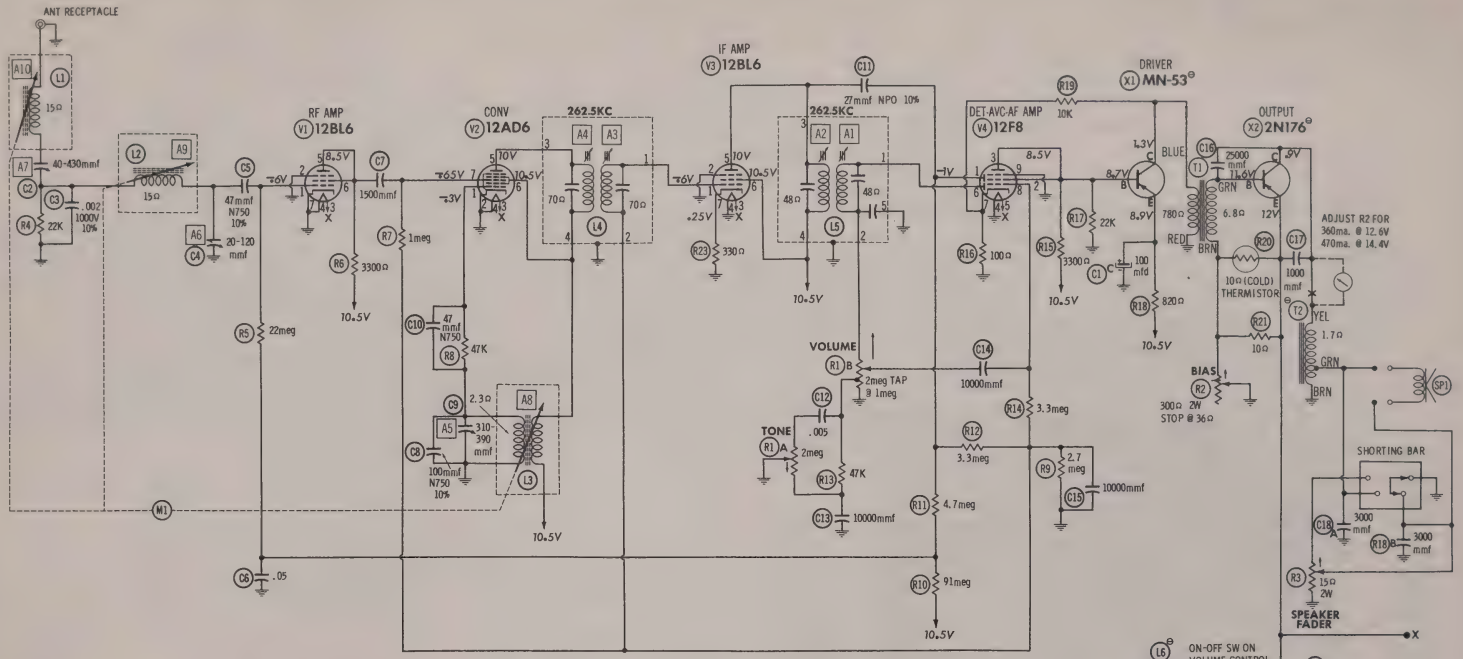
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	34B544292	
Dial Pointer	1V544481	
Knob	36K544223	Tuning, Volume
Knob	36K544286	Tone
Knob	36C544285	Speaker
Pushbutton	38B542665	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	33meg	0Ω	.1Ω	0Ω	3600Ω	3600Ω	0Ω		
V2	12AD6	47K	0Ω	.1Ω	0Ω	400Ω	330Ω	3.7meg		
V3	12BL6	2.7meg	0Ω	.1Ω	0Ω	380Ω	330Ω	330Ω		
V4	12F8	6meg	3300Ω	3300Ω	0Ω	.1Ω	2.1meg	100Ω	6meg	0Ω

TRANSISTOR CIRCUIT RESISTANCE FOR X1 AND X2 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

COLOR DOT TERM VIEW L4 — COLOR DOT TERM VIEW L5

BASE, EMITTER, COLLECTOR — TRANSISTOR TERM GUIDE X1 — TRANSISTOR TERM GUIDE X2

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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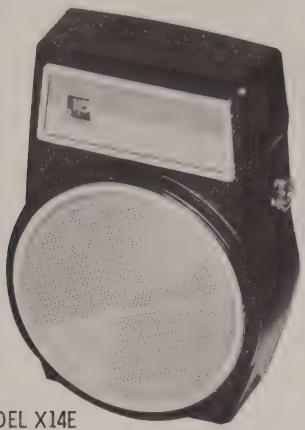
MOTOROLA MODEL OEA60X

PHOTOFACT® Folder with CIRCUITRACE®

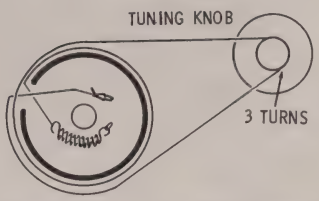
MOTOROLA MODELS X14B, X14E, X14R, X14W (Ch. HS-795)

MOTOROLA MODELS X14B, X14E, X14R, X14W (Ch. HS-795)



MODEL X14E

TUNING DRIVE CORD STRINGING



TUNING GANG FULLY COUNTER CLOCKWISE

FRONT VIEW

TRADE NAME	Motorola Models X14B, X14E, X14R, X14W (Ch. HS-795)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC RATING 4MA@9 Volts DC (No Signal, Min. Volume) 15MA@9 Volts DC (Signal, Normal Volume)

TUNING RANGE—BROADCAST 532 – 1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4.....GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547
A5, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	532KC	Tuning gang fully closed.	"	A4	"
3.	"	1620KC	Tuning gang fully open.	"	A5	Adjust for maximum output. Repeat Steps 2 and 3.
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output.
5.	"	600KC	600KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 4 and 5.

DISASSEMBLY

1. Loosen screw on cabinet back. (Screw is captive). Remove back.
2. Remove screw holding earphone jack. Remove spacer.
3. Remove 2 chassis mounting screws.
4. Remove battery and battery insulator.
5. Loosen screw holding speaker bracket and tilt bracket away from chassis.
6. Remove chassis.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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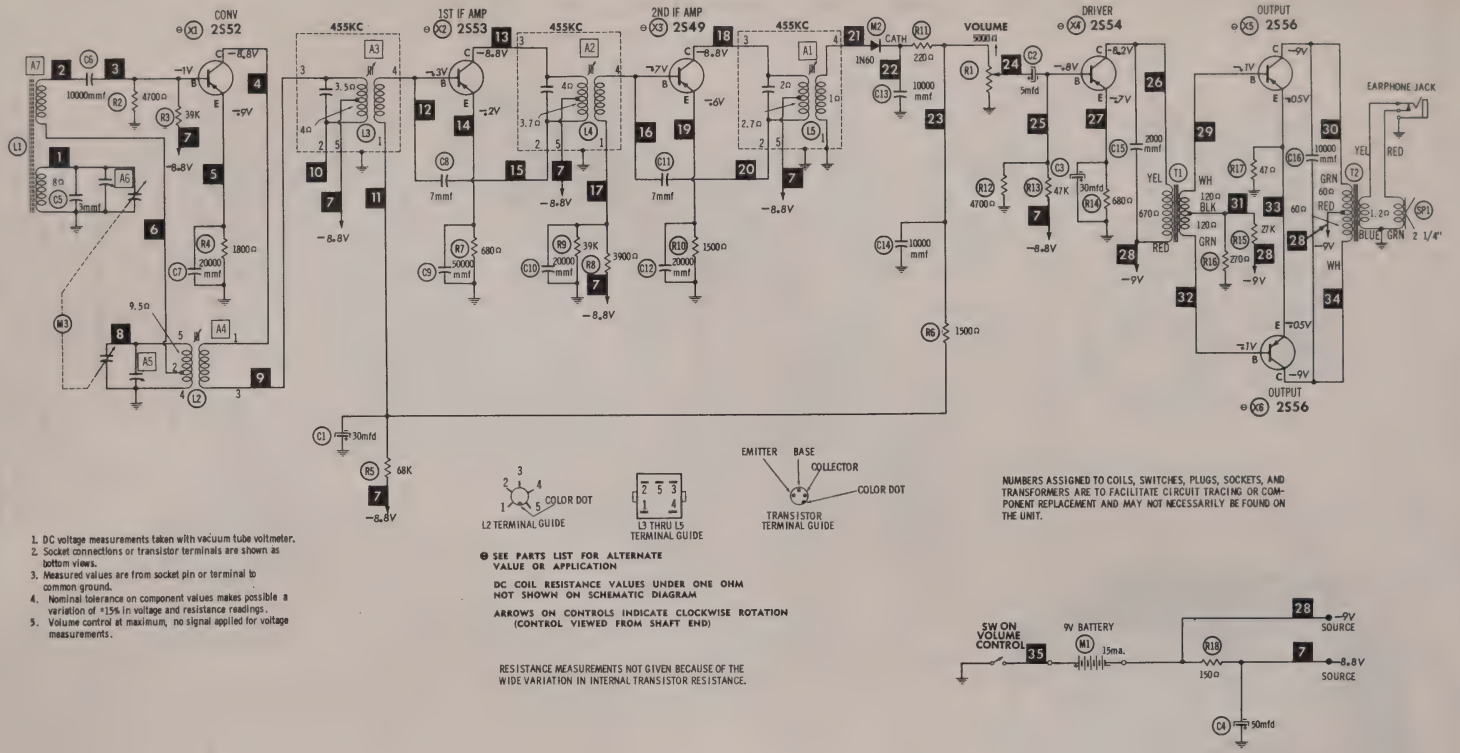
SET 509 FOLDER 14



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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MOTOROLA MODELS X14B, X14E, X14R, X14W (Ch. HS-795)

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S52①	Converter	2N412	2N486	2N411	PNP
X2	2S53②	1st IF Amplifier	2N410	2N483	2N410	PNP
X3	2S49③	2nd IF Amplifier	2N410			PNP
X4	2S54④	Driver	2N406	2N362	2N408	PNP
X5	2S56⑤	Output	2N408	2N632	2N408	PNP
X6	2S56⑤	Output	2N408	2N632	2N408	PNP

① Alternate Type 2SA52.
② Alternate Type 2SA53.
③ Alternate Type 2SA49.
④ Alternate Type 2SB54.
⑤ Alternate Type 2SB56.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	30	3	23K644668	PTT-3030	NLW30-6	TT6X30	ML30-3	TE-1092	
C2	5	3	23K644669	PTT-3005	NLW5-6	TT6X5	ML5-3	TE-1052.2	
C3	30	3	23K644668	PTT-3030	NLW30-6	TT6X30	ML30-3	TE-1092	
C4	50	10	23K644671	XPP-10050	NLW50-10	TT10X50	ML50-12	TE-1119	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	3		NPO-DI 3.3	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C6	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C7	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C8	7		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C9	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	7		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-6R8	10TCC-V68
C12	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C15	2000		DI-2000	DM-202	BYA10D2	CCD-202	B-220	10TS-D20
C16	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10	18B646634	B16-214				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	4700Ω	
R3	39K	
R4	1800Ω	
R5	68K	
R6	1500Ω	
R7	680Ω	

ITEM No.	RATING	REMARKS
R8	3900Ω	
R9	39K	
R10	1500Ω	
R11	220Ω	
R12	4700Ω	
R13	47K	

ITEM No.	RATING	REMARKS
R14	680Ω	
R15	27K	
R16	270Ω	
R17	47Ω	
R18	150Ω	

PRINTED BOARD

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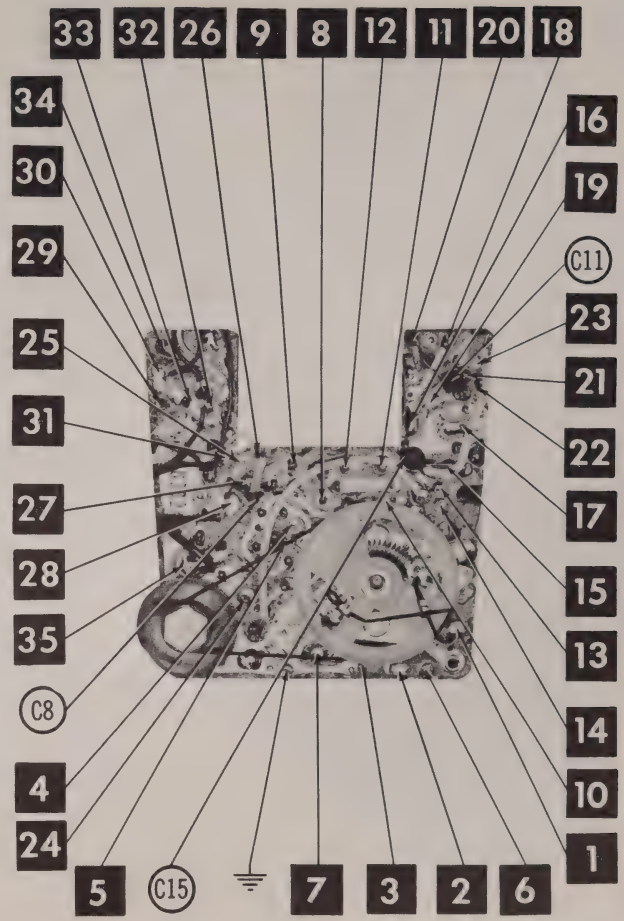


MOTOROLA MODELS X14B, X14E, X14R, X14W (Ch. HS-795)

FOLDER 14

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	24B646455				
L2	Osc. Coil	24B646451				
L3	1st IF Trans.	24C646136				
L4	2nd IF Trans.	24K646137				
L5	3rd IF Trans.	24K646138				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.1	1	25B646403					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	200Ω CT	8-10Ω	25B646402					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	8-10Ω	50B646333		

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			P6		226		M-1600	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60	48K644681	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

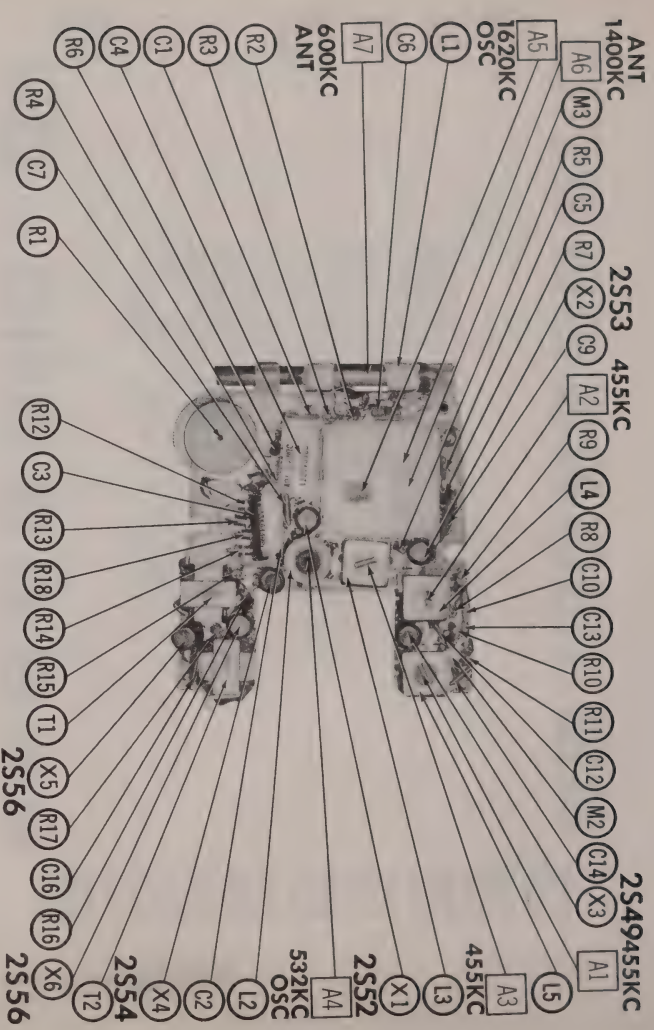
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Tuning Cap. Printed Board	19B646309 84C646382	2 Gang Less All Components

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial	34C646416	Scale
Knob	36B646379	Tuning
Knob	36B646404	Volume
Cabinet	16K646343	Back, Blue, Model Xl4B
Cabinet	16E646340	Back, Black, Model Xl4E
Cabinet	16K646342	Back, Red, Model Xl4R
Cabinet	16K646341	Back, White, Model Xl4W
Cabinet	1V646860	Front, Blue, Model Xl4B
Cabinet	1V646861	Front, Black, Model Xl4E
Cabinet	1V646862	Front, Red, Model Xl4R
Cabinet	1V646863	Front, White, Model Xl4W

CHASSIS—TOP VIEW



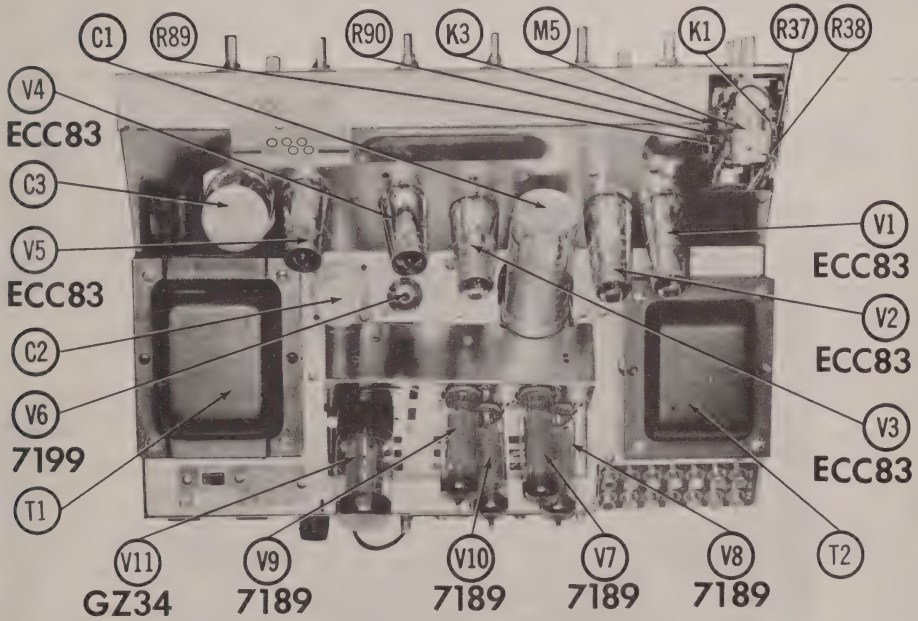
PHOTOFACT® Folder

**SHERWOOD
MODEL S-4400**

SHERWOOD
MODEL S-4400

TRADE NAME	Sherwood Model S-4400
MANUFACTURER	Sherwood Electronic Laboratories, Inc., 4300 N. California Ave., Chicago 18, Illinois
TYPE SET	AC Operated 11 Tube Stereo Preamplifier With Monaural Amplifier
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 110 Watts, .95 Amp. @ 117 Volts AC

SHERWOOD
MODEL S-4400



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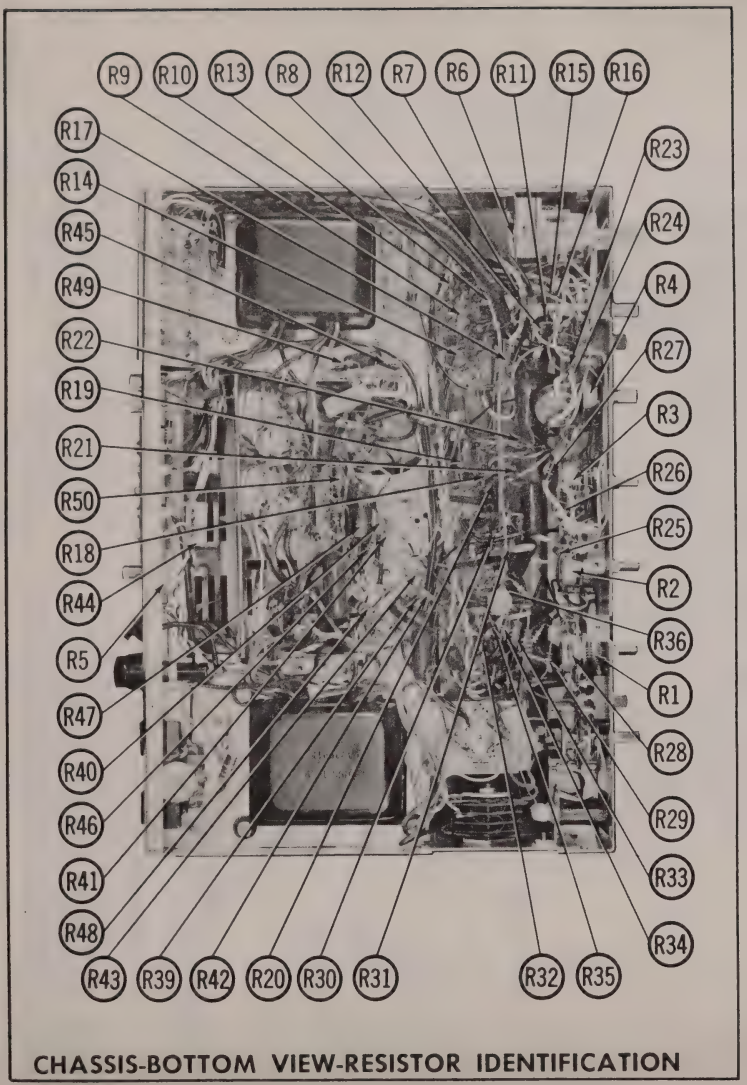
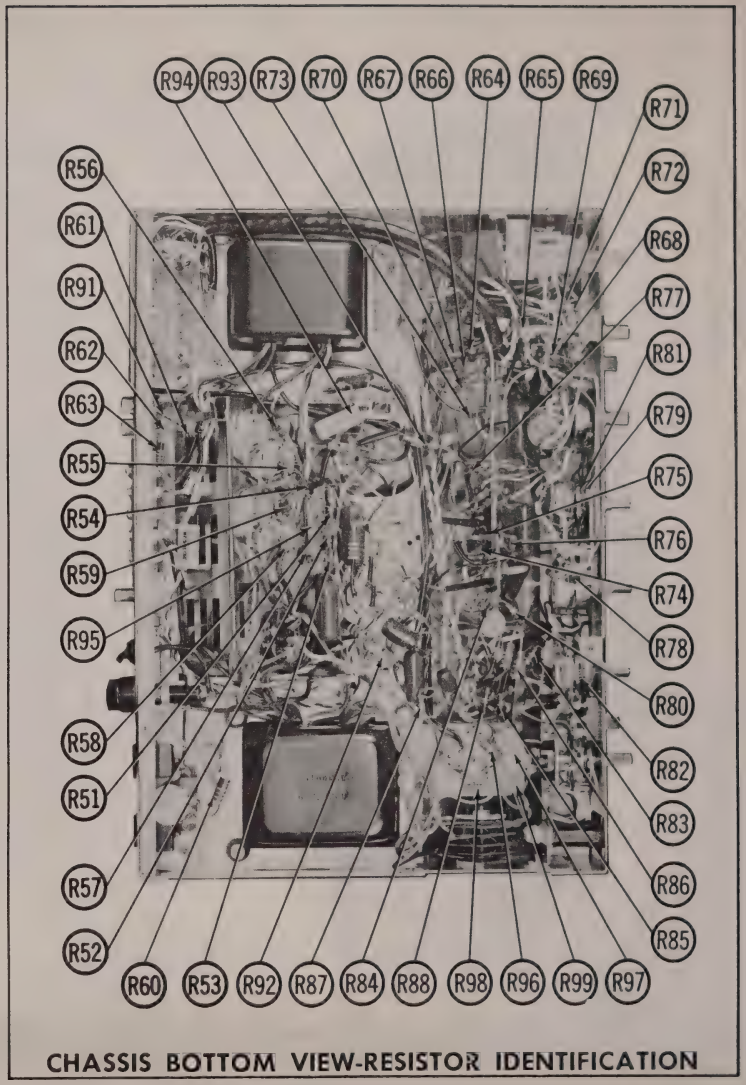
KV214

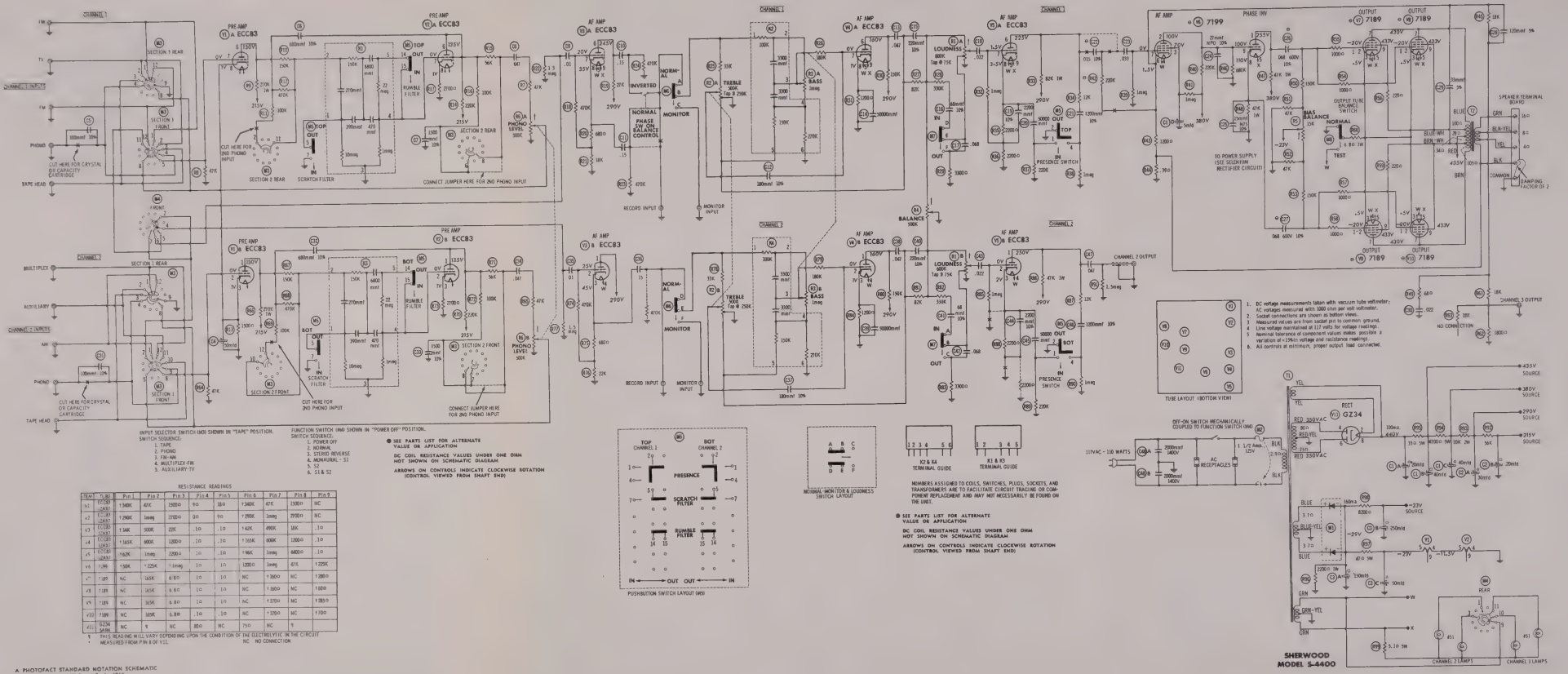
SET 509 FOLDER 15



CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



INPUT SELECTOR SWITCH (M3) SHOWN IN "TAPE" POSITION. SWITCH SEQUENCE:
1. TAPE
2. PHONO
3. FM-AM
4. MULTIPLEX-FM
5. AUXILIARY-TV

FUNCTION SWITCH (M4) SHOWN IN "POWER OFF" POSITION. SWITCH SEQUENCE:
1. POWER OFF
2. NORMAL
3. STEREO REVERSE
4. MONAURAL - S1
5. S2
6. S1 & S2

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
v1	ECC83 (12AX7)	†340K	47K	1500Ω	90	180	†340K	47K	1500Ω	NC
v2	ECC83 (12AX7)	†290K	1meg	2700Ω	0Ω	90	†290K	1meg	2700Ω	NC
v3	ECC83 (12AX7)	†1M	500K	22K	.1Ω	.1Ω	†42K	490K	18K	.1Ω
v4	ECC83 (12AX7)	†165K	600K	1200Ω	.1Ω	.1Ω	†165K	600K	1200Ω	.1Ω
v5	ECC83 (12AX7)	†62K	1meg	2200Ω	.1Ω	.1Ω	†94K	1meg	6400Ω	.1Ω
v6	7199	†50K	†225K	†1meg	1Ω	1Ω	1200Ω	1meg	47K	†225K
v7	7189	NC	165K	6.8Ω	1Ω	1Ω	NC	†360Ω	NC	†280Ω
v8	7189	NC	165K	6.8Ω	1Ω	1Ω	NC	†360Ω	NC	†60Ω
v9	7189	NC	165K	6.8Ω	1Ω	1Ω	NC	†170Ω	NC	†285Ω
v10	7189	NC	165K	6.8Ω	1Ω	1Ω	NC	†170Ω	NC	†70Ω
v11	6CB4 (6AB4)	NC	¶	NC	80Ω	NC	75Ω	NC	¶	

† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT MEASURED FROM PIN 8 OF V11.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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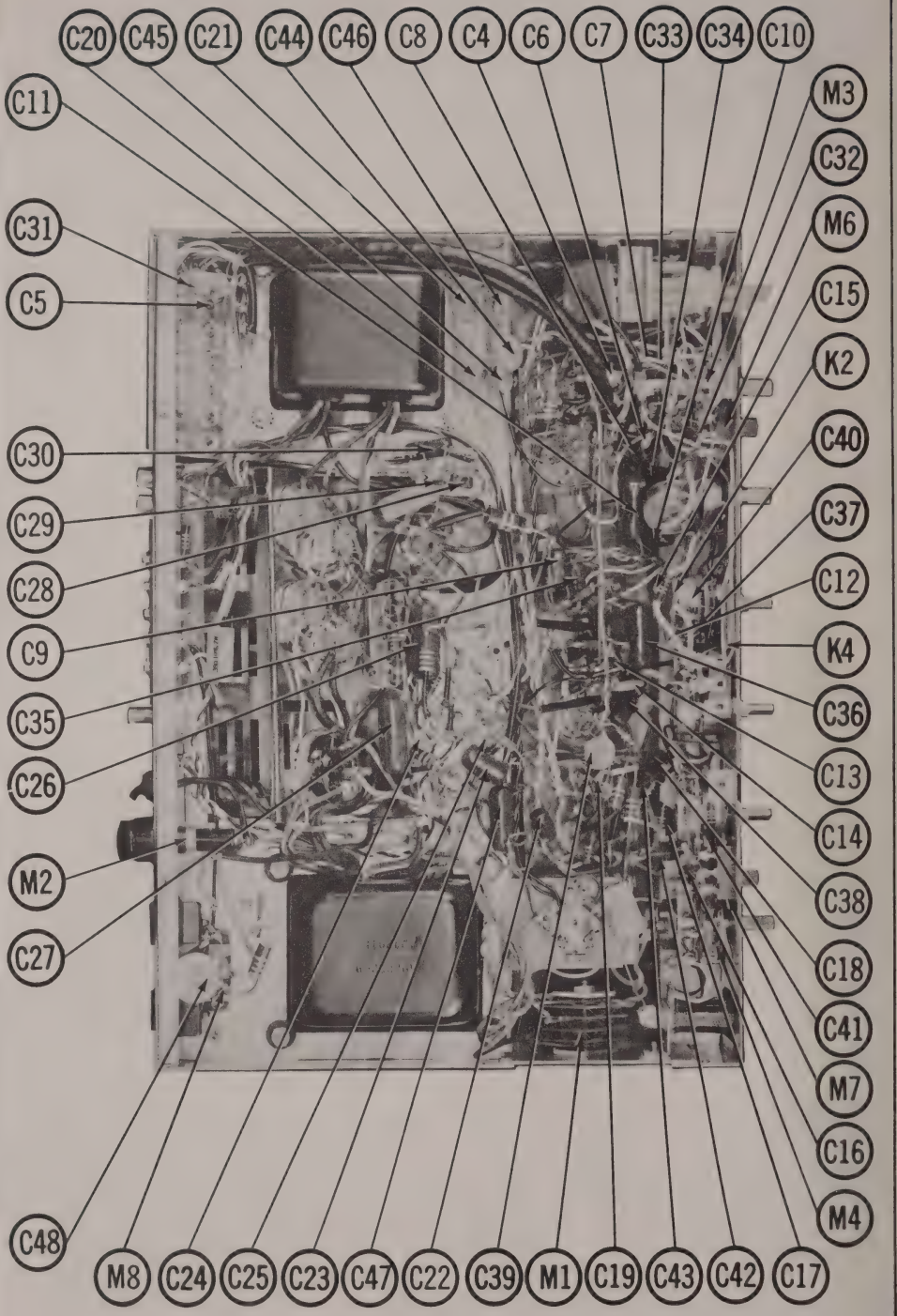
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Left Channel Preamp. - Right Channel Preamp.	ECC83/12AX7
V2	Left Channel Preamp. - Right Channel Preamp.	ECC83/12AX7
V3	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V4	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V5	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V6	Left Channel AF Amp. - Left Channel Phase Inv.	7199
V7	Left Channel Output	7189 (EL84/6BQ5) *
V8	Left Channel Output	7189 (EL84/6BQ5) *
V9	Left Channel Output	7189 (EL84/6BQ5) *
V10	Left Channel Output	7189 (EL84/6BQ5) *
V11	Rectifier	GZ34/5AR4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SHERWOOD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	500	A120B9-1						
B	■40	500							
C	▲40	500							
D	5	350							
C2A	▲30	400	A120J2-1			FP145			
B	■20	400				TC75			
C3A	■150	50	A120AB610					TVLS-3340 *	
B	▲250	50							
C	▲50	50							
C4	50	6		PTT-6050	NLW50-6	TT6X50	ML50-6	TVA-1100	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C6	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68
C7	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C8	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C9	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C10	.15 200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C11	.15 200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C12	180 10%		1469-00018	TCZ-180	22R5T18	CM-18B-181K	CNO-318	MS-318
C13	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C14	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C15	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C16	68 10%		1469-000068	TCZ-68	22R5Q68	CM-19B-680K	CNO-468	MS-468
C17	.068 200V		P288N-068		CUB4S68	4DP-3-683	GEM-4168	4TM-S68
C18	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C19	2200 10%		DI-2200		PM6D22	CCD-222	GP222	10TS-D22
C20	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C21	1200 10%		DI-1200	DD-122	DPMS6D12	CCD-122	GP212	10TS-D12
C22	.015 400V 10%	Note 1	V84C4S15-10%		PM4S15	4DP-1-153		4TM-S15
C23	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C24	27 NPO 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C25	15 N75 10%							
C26	.068 600V 10%	Note 2	V84C6S68-10%		DPMS6S68	6DP-4-683		6TM-S68
C27	.068 600V 10%	Note 2	V84C6S68-10%		DPMS6S68	6DP-4-683		6TM-S68
C28	120 5%		1469-00012	TCZ-120	22R5T12	CM-19B-121J	CNO-312	MS-312
C29	33 5%		1469-000033	TCZ-33	22R5Q33	CM-19B-330J	CNO-433	MS-433
C30	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C31	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C32	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C33	1500 10%		DI-1500	DD-152	PM6D15	CCD-152	GP215	10TS-D15
C34	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C35	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C36	.15 200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C37	180 10%		1469-00018	TCZ-180	22R5T18	CM-19B-181K	CNO-318	MS-318
C38	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C39	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C40	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C41	68 10%		1469-000068	TCZ-68	22R5Q68	CM-19B-680K	CNO-468	MS-468
C42	.068 200V		P288N-068		CUB4S68	4DP-3-683	GEM-4168	4TM-S68
C43	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C44	2200 10%		DI-2200		PM6D22	CCD-222	GP222	10TS-D22
C45	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C46	1200 10%		DI-1200	DD-122	DPMS6D12	CCD-122	GP212	10TS-T12
C47	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C48A	2000 1400V		BPD-2X002	DD3-202	BYD6DD2	3CCD-202	B2X220	5HK-2D2
B	2000 1400V					3CCD-202		

Note 1. Not used in some versions.
Note 2. C26 and C27 are matched within 3%.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SHERWOOD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	600K 75K Tap	1/2	A670J8-2					Loudness, Right Channel
B	600K 75K Tap	1/2						Loudness, Left Channel
R2A	500K 250K Tap	1/2	A670J2					Treble, Right Channel
B	500K 250K Tap	1/2						Treble, Left Channel
R3A	1meg	1/2	A670J3					Bass, Right Channel
B	1meg	1/2						Bass, Left Channel
R4A	5000K	1/2	A671J2-1					Balance
B	Switch							Push-Pull Off-On
R5A	15K	1/2	A670B8	TT-26	B47-25K-S	B11-118	TA153L	Bias Balance
B	Shaft		Not Req.	Not Req.	Not Req.	TM4	Not Req.	
R6A	500K	1/2	A670J4					Phono Level, Right Channel
B	500K	1/2						Phono Level, Left Channel

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R7	47K	
R8	47K	
R9	270K 1W	
R10	150K	
R11	100K	
R12	470K	
R13	1500Ω	
R14	220K	
R15	56K	
R16	100K	
R17	2700Ω	
R18	470K	
R19	27K	
R20	680Ω	
R21	18K	

ITEM No.	RATING	REMARKS
R22	1.5meg	
R23	470K	
R24	470K	
R25	33K	
R26	180K	
R27	82K	
R28	330K	
R29	3300Ω	
R30	150K	
R31	1200Ω	
R32	1meg	
R33	82K 1W	
R34	12K	
R35	2200Ω	
R36	2200Ω	

ITEM No.	RATING	REMARKS
R37	220K	
R38	1meg	
R39	1meg	
R40	220K	
R41	1meg	
R42	220K	Note 1
R43	1200Ω	
R44	0.39Ω	
R45	18K	
R46	680K	
R47	47K 1W	
R48	47K 1W	
R49	68Ω	
R50	150K	
R51	47K	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT) (cont)

ITEM No.	RATING	REMARKS
R52	47K	
R53	150K	
R54	1000Ω	
R55	1000Ω	
R56	220Ω	
R57	1000Ω	
R58	1000Ω	
R59	220Ω	
R60	6.8Ω 1W	
R61	18K	
R62	1800Ω	
R63	18K	
R64	47K	
R65	47K	
R66	270K 1W	
R67	150K	

ITEM No.	RATING	REMARKS
R68	470K	
R69	100K	
R70	220K	
R71	56K	
R72	100K	
R73	2700Ω	
R74	470K	
R75	680Ω	
R76	22K	
R77	1.5meg	
R78	33K	
R79	180K	
R80	150K	
R81	82K	
R82	330K	
R83	3300Ω	

ITEM No.	RATING	REMARKS
R84	1200Ω	
R85	1meg	
R86	47K 1W	
R87	12K	
R88	2200Ω	
R89	220K	
R90	1meg	
R91	1.5meg	
R92	56K	
R93	10K 2W	
R94	4700Ω 5W	IRC#PW5-4700Ω
R95	33Ω 5W	IRC#PW5-33Ω
R96	2200Ω 1W	
R97	47Ω 5W	IRC#PW5-47Ω
R98	8200Ω	
R99	5.1Ω 5W	IRC#PW5-5.1Ω

Note 1. Not used in some versions.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SHERWOOD PART No.	REPLACEMENT DATA	
K1	Scratch Filter Comp.	270mmf, 390mmf, 470mmf, 6800mmf, 150K, 1meg, 10meg, 22meg	B680B1	Sprague	TC-26
K2	Tone Comp.	3300mmf, 3300mmf, 100K, 150K, 270K	A680B2	Sprague	TC-27
K3	Scratch Filter Comp.	270mmf, 390mmf, 470mmf, 6800mmf, 150K, 1meg, 10meg, 22meg	B680B1	Sprague	TC-26
K4	Tone Comp.	3300mmf, 3300mmf, 100K, 150K, 270K	A680B1	Sprague	TC-27

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: SHERWOOD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2						
T1	117V @ .95A	700 VCT @ .100A	5V @ 1.9A	A922B2-9					
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT @ 4.5A	50VCT @ .160A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA: SHERWOOD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC.						
T2	5200Ω CT Tap @ 500Ω CT	16Ω Tap @ 8Ω, 4Ω	B920B2					

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: SHERWOOD PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.160A				2S33-2CN1-RV		Bridge Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: SHERWOOD PART No. FUSE	SHERWOOD PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	1½A 125V S/B			31301.5 (3AG 1½A 125V S/B)	342001	MDL 1½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	SHERWOOD PART No.	NOTES
M3	Switch		Input Selector (Rotary Wafer Type)
M4	Switch		Function Selector (Rotary Wafer Type)
M5	Switch		Pushbutton Type (Includes Presence, Scratch Filter and Rumble Filter)
M6	Switch		Normal-Monitor (DPDT Slide Type)
M7	Switch		Loudness, In-Out (DPDT Slide Type)
M8	Switch		Output Tube Balance (SPDT Slide Type), Test-Normal

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

**TECH-MASTER
MODEL PA-39**

TECH-MASTER
MODEL PA-39

TECH-MASTER
MODEL PA-39

TRADE NAME	Tech-Master Model PA-39
MANUFACTURER	Tech-Master Products Co., 75 Front Street, Brooklyn, N. Y.
TYPE SET	AC Operated 4 Tube Stereo Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 52 Watts, .71 Amp. @117 Volts AC

SET 509 FOLDER 16

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KV198

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PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel A AF Amp. - Channel B AF Amp.	12AX7 (ECC83) *	V3	Channel B Output	EL84/6BQ5
V2	Channel A Output	EL84/6BQ5	V4	Rectifier	EZ80 (6V4) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Tech-Master PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	20	300		PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C2A	▲40	350		AFH4-04	B0440	FP420.35	TMD-2390	TVLS-3775.6*	
B	■40	350		PRS1670	BR4035		TD-20-350		
C	▲20	350							
C3	200	3		SRE3V100	BBR250-6	TC304	TD-250-6	TVA-1102	
C4	100	15		PRS1200	BBR100-15	TC2501	TD-100-15	TVA-1160	
C5	100	15		PRS1200	BBR100-15	TC2501	TD-100-15	TVA-1160	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

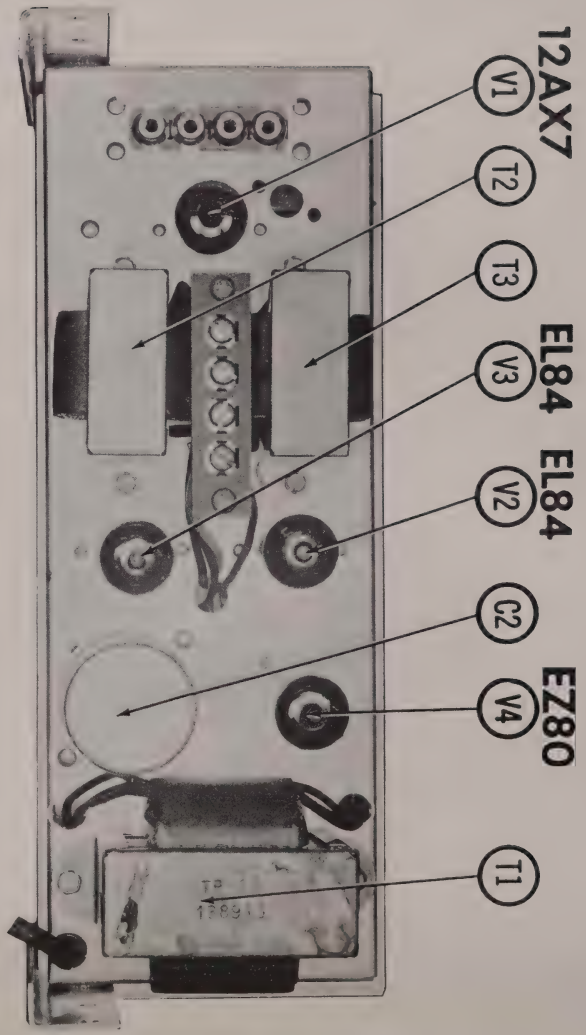
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C7	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C8	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C9	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C10	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Tech-Master PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	VC-48	B-70	AD47-1meg-Z		FA16A	Gain, Channel A
B	1meg			SR-70	Not Req.		RU16A	Gain, Channel B
C	Shaft			Not Req.	FS-3		CS3500	
R2A	500	2(WW)	VC-49	WW-500	A43-50	W11-050	R50L	Balance
B	Shaft			Not Req.	KSS-3	SK5	Not Req.	
R3A	1meg	½	T-2	B-70	A47-1meg-Z	Q13-137	U53	Tone B
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	500K	½	VC505	B-60-S	A47-500K-Z	Q13-133	U48	Tone A
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	220K 1W	
R6	220K 1W	
R7	1500Ω	
R8	150Ω 1W	
R9	150Ω	
R10	10K	
R11	2700Ω 2W	
R12	100Ω 4W	IRC#PW5-100Ω
R13	12Ω 1W	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Tech-Master PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .71A	250V@ .085A D.C.	6.3V@ 2.5A	TP-25					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Tech-Master PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5600Ω	3-4Ω	TP-123	A-3019	A-3849	26S49	S-5Z	
T3	5600Ω	3-4Ω	TP-123	A-3019	A-3849	26S49	S-5Z	

MISCELLANEOUS

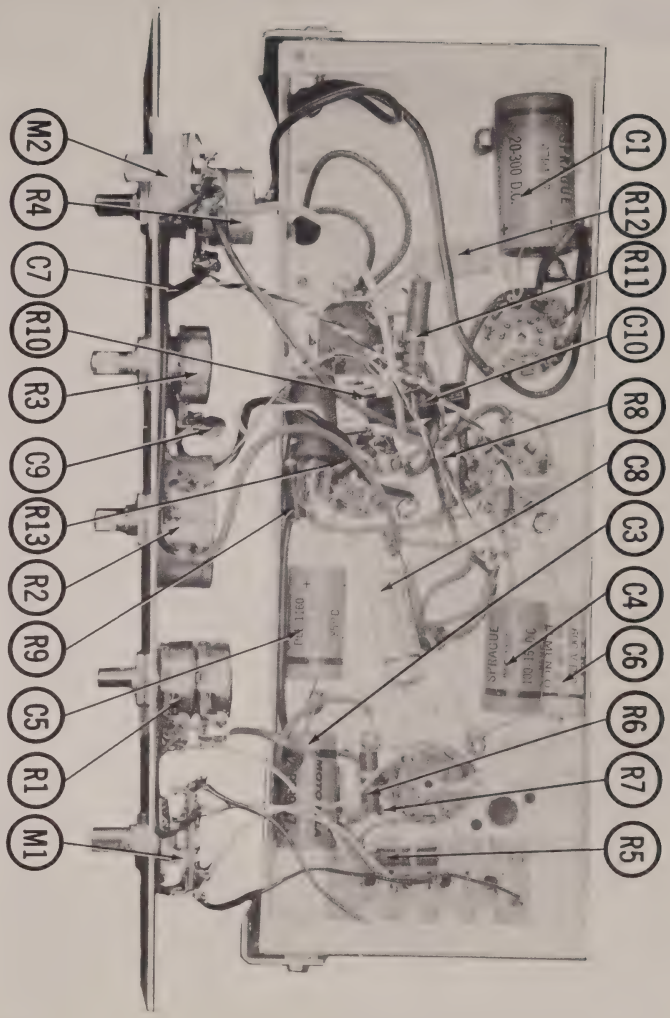
ITEM No.	PART NAME	Tech-Master PART No.	NOTES
M1	Switch		Selector (Rotary Wafer Type)
M2	Switch		Speaker Selector (DPDT Slide Type)

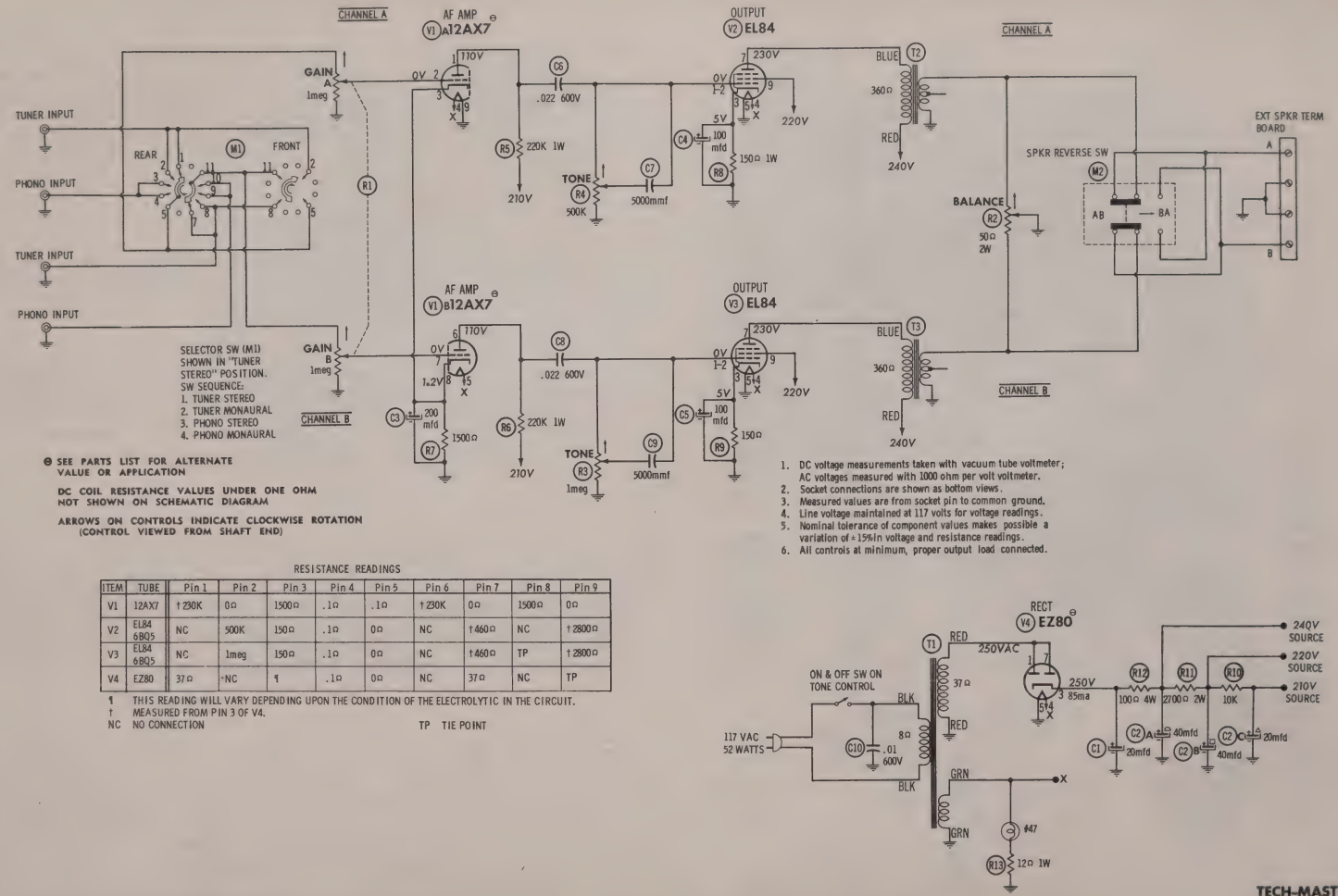
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†230K	0Ω	1500Ω	.1Ω	.1Ω	†230K	0Ω	1500Ω	0Ω
V2	EL84 6BQ5	NC	500K	150Ω	.1Ω	0Ω	NC	†460Ω	NC	†2800Ω
V3	EL84 6BQ5	NC	1meg	150Ω	.1Ω	0Ω	NC	†460Ω	TP	†2800Ω
V4	EZ80	37Ω	·NC	¶	.1Ω	0Ω	NC	37Ω	NC	TP

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V4.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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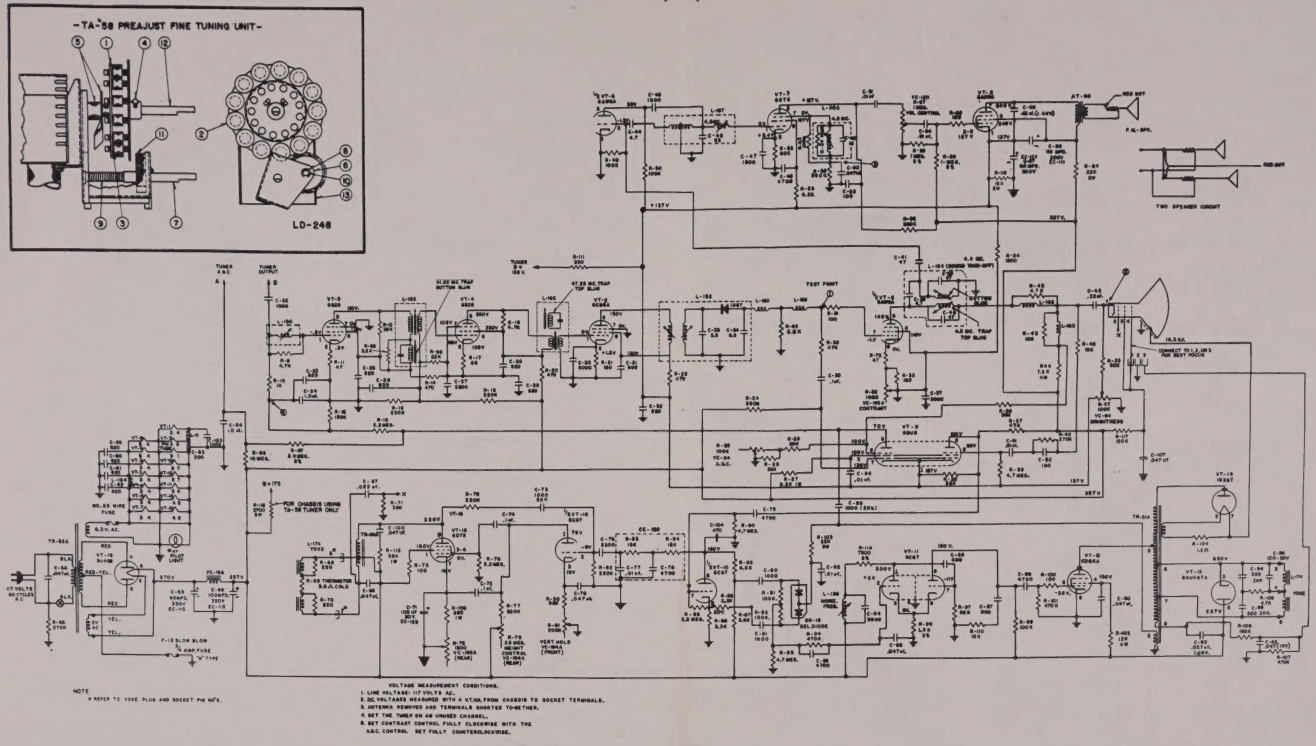
TECH-MASTER MODEL PA-39

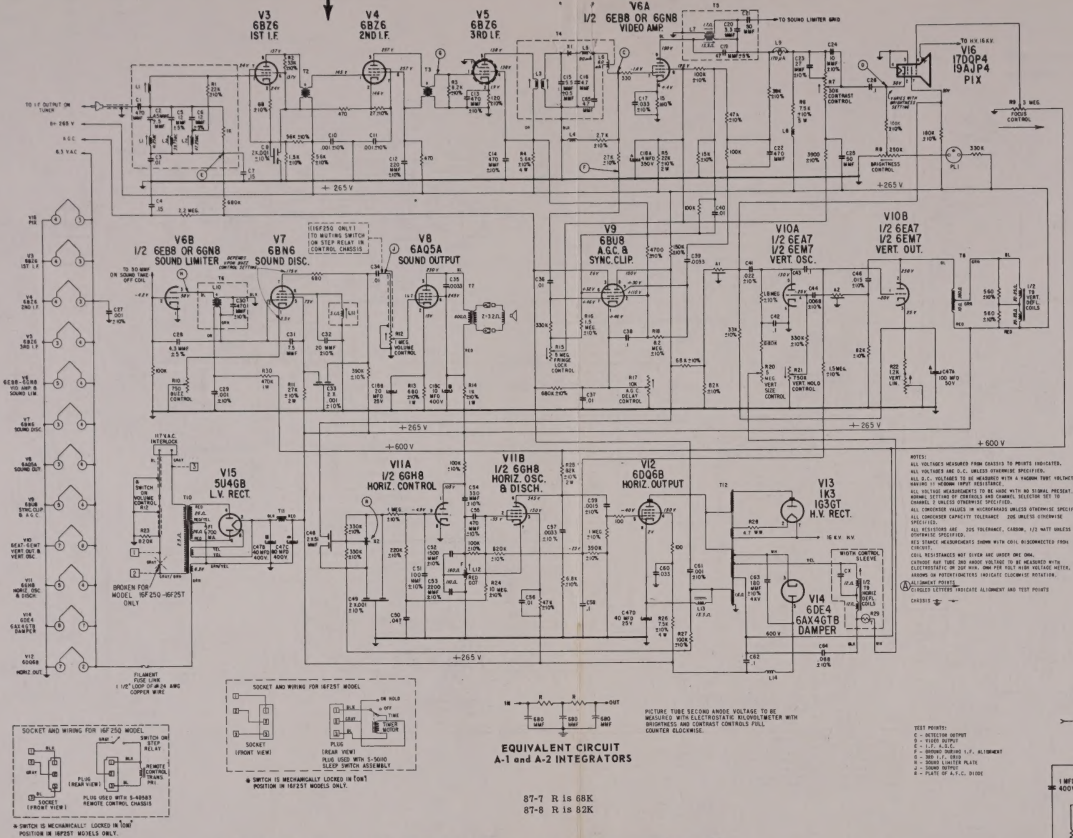

-TA-58 PREADJUST FINE TUNING UNIT-
LD-248
TWO SPEAKER CIRCUIT
FOR CHASSIS USING TA-58 TUNER ONLY
VOLTAGE MEASUREMENT CONDITIONS.
1. LINE VOLTAGE 117 VOLTS AC.
2. DC VOLTAGES MEASURED WITH A VTVM FROM CHASSIS TO SOCKET TERMINALS.
3. ANTENNA REMOVED AND TERMINALS SHORTED TOGETHER.
4. SET THE TUNER ON AN UNUSED CHANNEL.
5. SET CONTRAST CONTROL FULLY CLOCKWISE WITH THE A.G.C. CONTROL SET FULLY COUNTERCLOCKWISE.

TRUETONE MODELS 2DC1140, 2DC1142

Schematic Diagram Courtesy of Western Auto Supply

← TRUETONE

ZENITH


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6BZ6 3RD I.F.
V6A 1/2 6EB8 OR 6GN8 VIDEO AMP.
V16 17QQP4 19AJP4 PIX
V6B 1/2 6EB8 OR 6GN8 SOUND LIMITER
V7 6BN6 SOUND DISC.
V8 6AQ5A SOUND OUTPUT
V9 6BU8 A.G.C. & SYNC. CLIP.
V10A 1/2 6EA7 1/2 6EM7 VERT. OSC.
V10B 1/2 6EA7 1/2 6EM7 VERT. OUT.
V11A 1/2 6GH8 HORIZ. CONTROL
V11B 1/2 6GH8 HORIZ. OSC. & DISCH.
V12 6DQ6B HORIZ. OUTPUT
V13 1K3 1G3GT H.V. RECT.
V14 6DE4 6AX4GTB DAMPER
V15 5U4GB L.V. RECT.
TO SOUND LIMITER GRID
TO H.V. LEAD
FOCUS CONTROL
BRIGHTNESS CONTROL
CONTRAST CONTROL
VERT. HOLD CONTROL
VERT. SIZE CONTROL
VERT. LIN.
HORIZ. HOLD CONTROL
HORIZ. FREQ. CONTROL
HORIZ. SIZE CONTROL
HORIZ. LIN. COIL
HORIZ. CENTERING COILS
VERT. CENTERING COILS
PIX TUBE
BRIGHTNESS CONTROL
ALTERNATE BRIGHTNESS CIRCUIT
B+265
SOCKET AND WIRING FOR 16F25Q MODEL
SOCKET AND WIRING FOR 16F25T MODEL
EQUIVALENT CIRCUIT A-1 and A-2 INTEGRATORS
87-7 R is 68K
87-8 R is 82K

ZENITH MODELS F1805C, CU, L, LU, F1806B, BU, L, LU, F1807C, CU, L, LU, F2010C, F2105C, CU, F2110B, BU, F2111L, LU, F2112J, JU, W, WU, F2120E, EU, M, MU, R, RU, W, WU, F2214L, F2215J, L, F2230E, M, R, W (CH. 16F25, Q, U, 16F26, Q, U)

Schematic Diagram Courtesy of Zenith Radio Corporation

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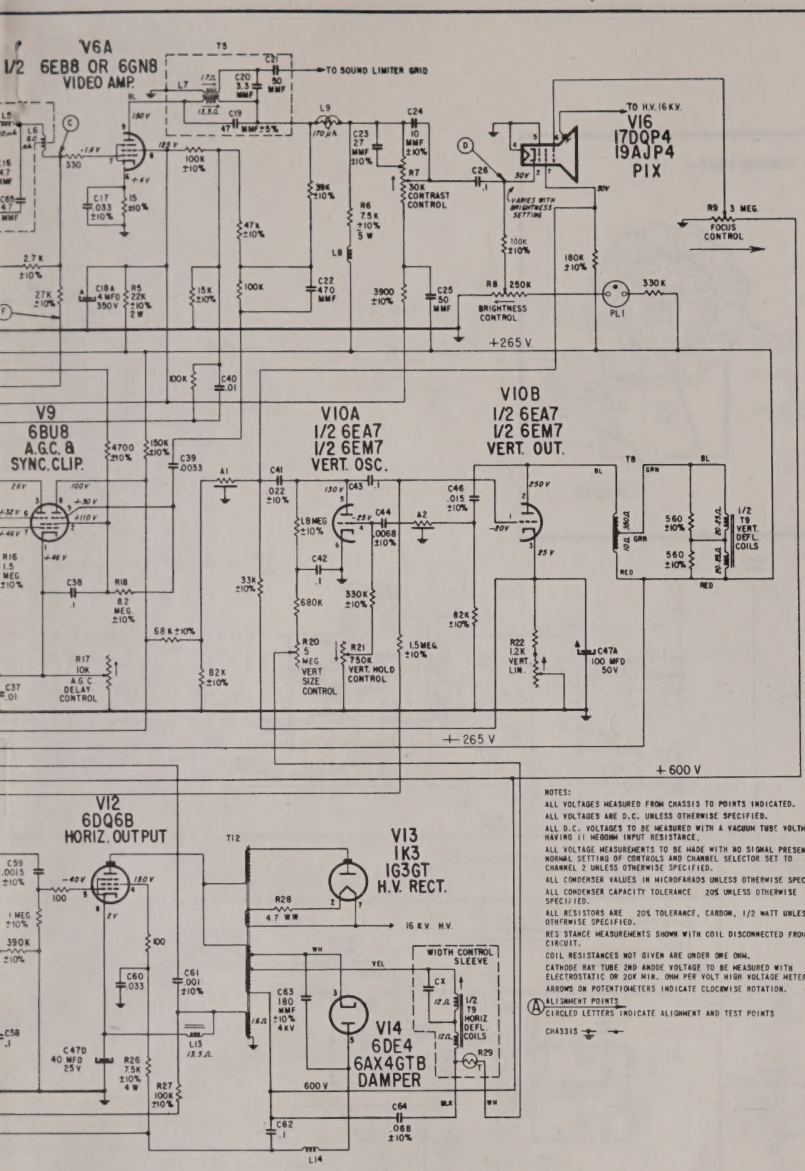


NOTES:

ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.

ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT. NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.

ALL CONDENSER VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

ALL CONDENSER CAPACITY TOLERANCE 20% UNLESS OTHERWISE SPECIFIED.

ALL RESISTORS ARE 20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.

RESISTANCE MEASUREMENTS SHOWN WITH COIL DISCONNECTED FROM CIRCUIT.

COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.

CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER.

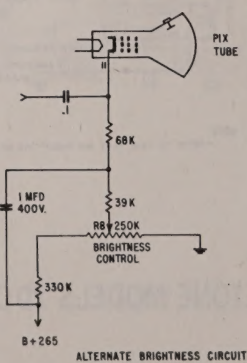
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.

(A) ALIGNMENT POINTS.
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS

CHASSIS

PICTURE TUBE SECOND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC KILOVOLTMETER WITH BRIGHTNESS AND CONTRAST CONTROLS FULL COUNTER CLOCKWISE.

TEST POINTS:
C - DETECTOR OUTPUT
D - VIDEO OUTPUT
E - I.F. A.G.C.
F - GROUND DURING I.F. ALIGNMENT
G - 3RD I.F. GRID
H - SOUND LIMITER PLATE
J - SOUND OUTPUT
R - PLATE OF A.F.C. DIODE



ALTERNATE BRIGHTNESS CIRCUIT

IRCUIT
GRATORS

2010C, F2105C, CU,
VU, F2214L, F2215J,

Schematic Diagram Courtesy of Zenith Radio Corporation